

THE WORLD'S FIRST AND ONLY AIR CARGO MAGAZINE — NOW IN ITS 14TH YEAR

AIR TRANSPORTATION

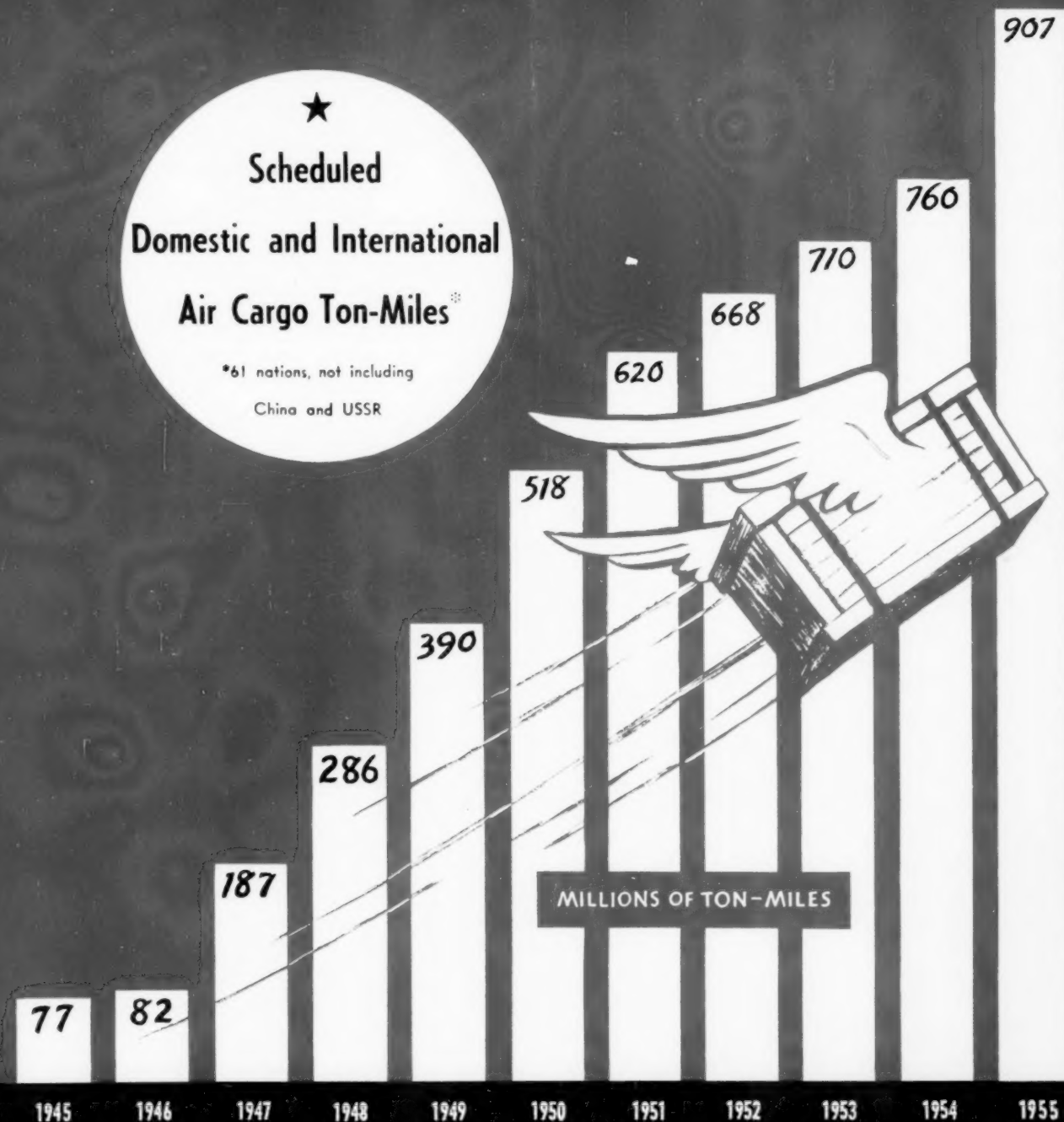
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THE AIR MAGAZINE FOR THE BUSINESS EXECUTIVE

March, 1956

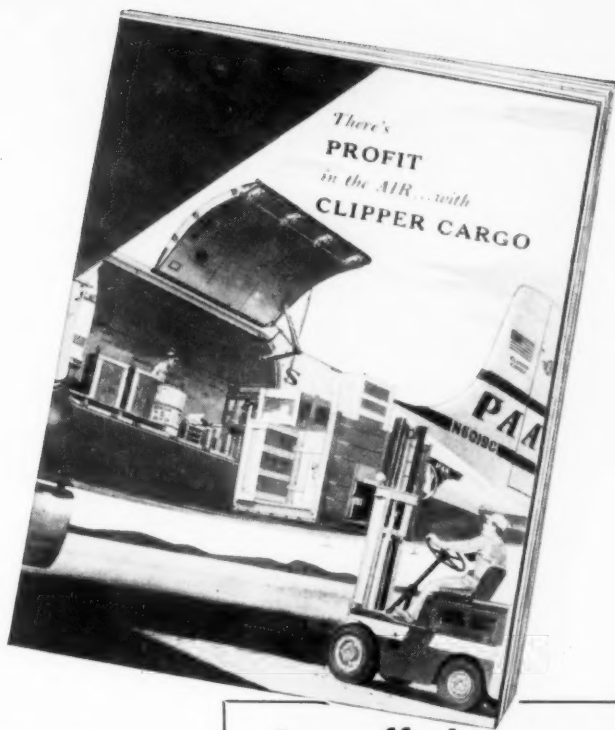
★
Scheduled
Domestic and International
Air Cargo Ton-Miles*

*61 nations, not including
China and USSR



If you ship, buy
or sell overseas

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Latest authoritative information on Clipper® Cargo gives you profit-making answers to questions like these:

- HOW** to make working capital work harder?
- HOW** to eliminate expensive overseas warehousing?
- HOW** to reduce the *real* cost of distribution?
- HOW** to simplify red tape?
- WHAT** "hidden costs" often make surface shipment more expensive than shipping by air?

These are only a few of the important questions you'll find answered by the airline that "wrote the book" on air cargo—Pan Am, leader in overseas air shipping!

"*There's Profit in the Air*" suggests ways to exploit and expand markets . . . to keep ahead of your competition overseas . . . to cut insurance rates and paperwork . . . save packaging costs . . . reduce breakage and pilfering.

Profusely illustrated and carefully documented, this big new 14-page booklet also tells you how to get a *free* cost analysis of your actual shipping needs . . . how to find out about special low commodity rates, charter service, reserved space.

And in addition, it's *free*! So don't wait. Send the coupon today. Every day's delay may be costing you hundreds of dollars.

PAN AMERICAN

**FLIES MORE CARGO OVERSEAS
THAN ANY OTHER AIRLINE**

**Includes 7 actual case histories showing
how businesses like yours save from \$300
to \$100,000 by using Clipper Cargo**

Hundreds to hundreds of thousands of dollars are being saved by Clipper Cargo shippers every day. Similar savings can be yours—as the case reports in this booklet show.

One tells how a single air cargo shipment saved \$100,000 for an overseas construction company. Another firm increased its profit over surface shipment *11 times*, with only 10% the investment of working capital needed to match this profit by surface. Profit from studying every example this booklet gives!

*Trade-Mark, Reg. U. S. Pat. Off.

SEND FOR YOUR FREE COPY NOW!

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Gentlemen: Please send me the new free booklet, "*There's Profit in the Air . . . with Clipper Cargo*" ☐. I'd also like a Pan Am representative to make a free Cost Analysis of my own shipping needs ☐.

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THROUGH THE SCHOOL **OF HARD KNOCKS** **WITH FLYING COLORS!**

FAIRCHILD C-123 PASSES OPERATIONAL SUITABILITY TESTS

Now being subjected to rugged tests for the U. S. Air Force, the Fairchild C-123 Assault Transport has proved it can withstand the rigors of any combat airlift mission and win an "A" for top performance!

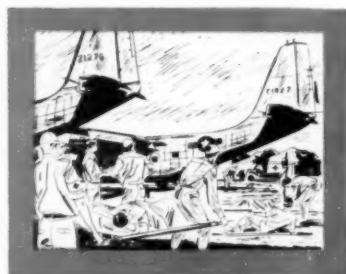
Shown above is an actual photograph of a C-123 making a short field landing downwind over a 50-foot obstacle on a sandy, deeply rutted strip at Eglin Air Force Base. During other tests the C-123 was flown in simulated front line combat airlift missions and proved its durability by landing and taking off on extra rough terrain in the shortest possible distance.

The Fairchild C-123 is literally built to "take it tough" on any assigned Air Force mission... another example of the rugged, hard-job dependability built into Fairchild utility and logistics aircraft.



The Fairchild C-123 was especially designed for landings and take-offs on rough, unprepared fields.

Litter patients, airborne troops or almost 10 tons of bulk equipment may be airlifted by the C-123. A built-in ramp facilitates quick loading and unloading of cargo and troops.



During "Operation Shakedown", the C-123 was subjected to 500 hours of rugged duty under all operational conditions.



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AIRCRAFT DIVISION • HAGERSTOWN, MARYLAND

...WHERE THE FUTURE IS MEASURED IN LIGHT-YEARS!

TRANSPORTATION

The World's First and Only Air Cargo Magazine . . . Established October, 1942



AIR TRANSPORTATION, published once each month, thoroughly covers the entire air cargo industry for the benefit of all those engaged in shipping and handling domestic and international air freight, air express, and air parcel post, as well as using the domestic and international air mail services. Included in **AIR TRANSPORTATION'S** wide coverage are: air shipping, cargo plane development, rates, packaging, materials handling, documentation, air cargo terminal development, insurance, routing, interline procedures, new equipment, commercial airlines, military air transport service, air freight forwarders, and business flights.

Subscription rate for United States and Territories, \$5.00 for one year, \$8.00 for two years, and \$11.00 for three years; foreign countries, \$6.00 for one year, \$10.00 for two years, and \$14.00 for three years. Individual copies (except November), 50 cents each; November issue, \$1.00 per copy.

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Net circulation of this issue (not including distribution to advertising agencies, advertising prospects, public relations firms, newspapers, and magazines; special distributions for promotional purposes; and cash sales) totals 9,625 copies. Gross circulation is more than 10,200 copies. This issue will be received by a minimum of

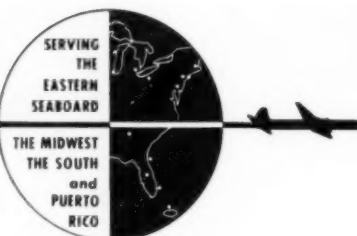
8,603 shipping and business executives including:	317 airline executives and other personnel
5,214 traffic managers	127 military personnel (principally MATS)
1,017 presidents; partners; proprietors	5 banks
68 vice presidents	15 insurance firms
54 secretaries; treasurers; controllers	85 trade organizations
560 freight forwarders	212 Federal, state and city government departments
430 export-import managers; export-import merchants	85 educational institutions and students
265 purchasing agents	57 business and public libraries
854 aviation department heads of commercial and industrial firms	43 foreign governments
140 general and sales managers	48 aircraft and aircraft equipment manufacturers
1 awaiting classification	27 miscellaneous

The most recent study of *Air Transportation's* circulation has shown a pass-along of each issue to 3.45 persons, or a total readership of 4.45 persons per copy. On this basis, this issue of *Air Transportation* will be read by a minimum of 42,831 persons. The latter figure does not include readers not classified under "net circulation."

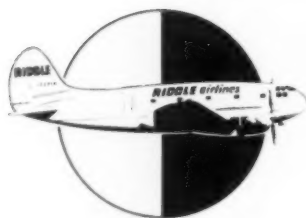
By special arrangement, this issue will be received by delegates to the 35th Annual Convention of the Export Managers Club of New York, Inc.

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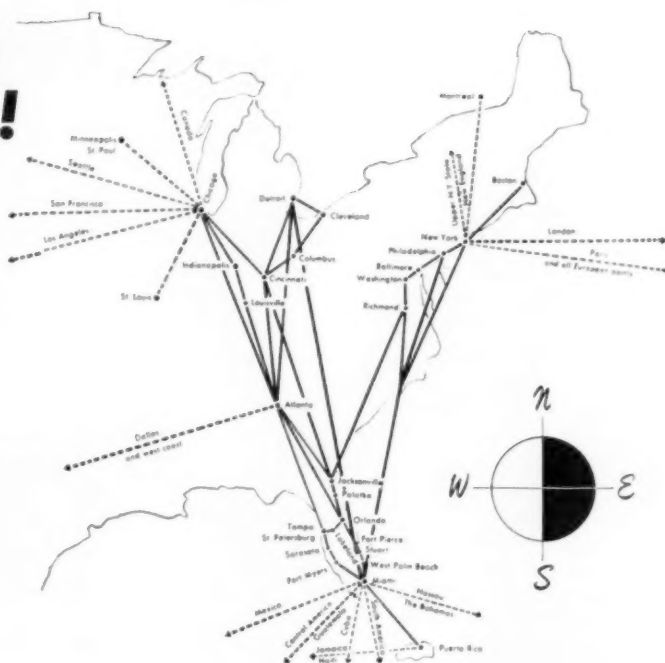


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or *RIDDLE* airlines direct for complete
new flight schedules

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March 1st

FLEXIBILITY OF LOCKHEED

JET TRAINERS ENABLES

MILITARY PLANNERS TO

ACHIEVE MAXIMUM ECONOMY!

Planes, like automobiles or sewing machines, can be manufactured at less cost in large quantities. This is particularly true of military aircraft, due to their inherent complexity and the exacting construction requirements of the armed forces.

U.S. military planners decided almost ten years ago to standardize on *one* jet trainer—adaptable to the pilot-training requirements of *all* branches of the armed services. Lockheed's jet trainer was an ideal choice, because its advanced basic design could be kept militarily up to date at minimum expense. The saving on over 4,500 T-33A/TV-2 type jet trainers built by Lockheed since 1948 adds up to millions of dollars.

Hailed as the world's safest jet trainer, the Navy's T2V-1 SeaStar was built in only 135 working days from start of structural work to roll-out—another Lockheed production record! And because Lockheed has the T2V-1 production line in being, all branches of the U.S. armed services are assured of being able to get the latest and the best jet trainers in the shortest time—modified to suit the special requirements of each.

U.S. Navy T2V-1 SeaStar Jet Trainer

First U.S. plane ordered into production utilizing Boundary Layer Control 1, which permits shorter take-offs and safer landings at slower speeds. Aerodynamically actuated slats on wing's leading edge 2 contribute superior anti-stall characteristics. Elevated aft cockpit 3 gives the instructor excellent straight forward visibility during approaches, landings and take-offs. Oversized vertical stabilizer, and rudder areas 4, and prominent dorsal fin 5 provide maximum controllability in all speed ranges. Extremely rugged landing gear, retracted in flight, will withstand terrific punishment incurred in early-training landings on airfields or carrier decks.

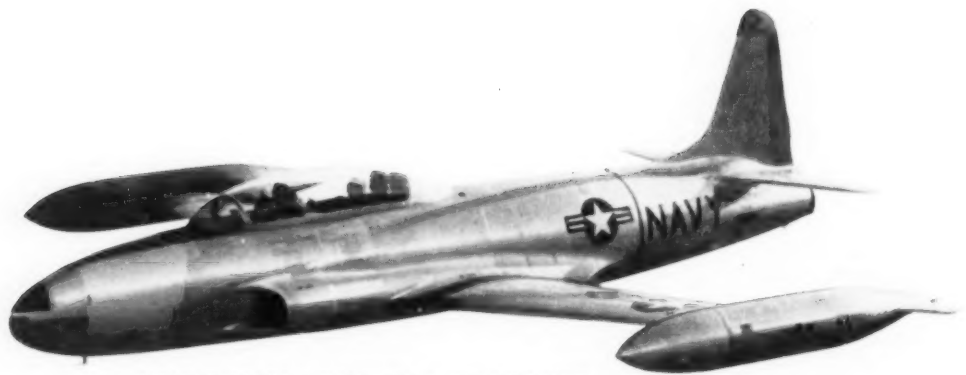


LOCKHEED

AIRCRAFT CORPORATION, BURBANK, CALIF.

LOOK TO LOCKHEED FOR JET LEADERSHIP, TOO

U.S. TRAINS WORLD'S BEST JET PILOTS AT LOWEST POSSIBLE COST



USAF T-33A/U.S. NAVY TV-2 JET TRAINER



NINE OUT OF TEN U.S. MILITARY
JET PILOTS HAVE BEEN TRAINED IN
LOCKHEED JET TRAINERS

International

SERVICES

BOAC: Non-stop *Stratocruiser* service between New York and Montego Bay, Jamaica was resumed recently on a two-a-week basis.

Japan: Third non-scheduled flight to Brazil since JAL began operations departs Tokyo March 17. Arrival in San Francisco is 9:30 a.m. March 18, departing for New Orleans at 2 p.m. same day. Final destination is Sao Paulo at 9 a.m. March 20, with stops at Caracas, Belem, and Rio de Janeiro. Return flight will be over the same route.

LACSA: Scheduled service connecting Panama with San Juan is now in operation. The new service originates in San Jose, Costa Rica, stops in Panama, and crosses the Caribbean to San Juan. Departures from San Jose are every Thursday, with return flights from San Juan every Saturday. Convair 340 equipment is operated.

LAI: The Italian carrier expects to open a Vienna-Venice-Rome route this year. Also on the agenda is a Milan-Munich-Vienna service, with a half-dozen flights weekly.

RATES

Specific commodity rates for volume freight flown within Europe have been considerably simplified by the International Air Transport Association. New tariffs have reduced the number of commodity descriptions

by 52% and the number of special rates by 40%. Said IATA:

"The action will not affect actual charges for carrying air cargo, nor will it rule out any existing specific rates now in actual use. The new tariffs do, however, eliminate an accumulation of 'deadwood' and will be an easier working tool for shippers and cargo agents, as well as a more effective selling aid for the airlines."

This is the second move by the scheduled international airlines to simplify their rate structure. A somewhat similar revision of North Atlantic commodity rates went into effect last Summer (see *July, 1955 AT*). It was explained by IATA that simplification had been achieved through the elimination of unused rates, the setting up of more comprehensive descriptions, and the consolidation of certain specific rates. As a result, European specific cargo tariffs now carry 176 descriptions where formerly 374 were required, and 1,840 rates in contrast to 3,014. Also, specific rates are now stated in terms of actual charges rather than as percentages of reduction from the general cargo rate.

Further simplification is on the horizon. The Paris Board of IATA meets next June to study the subject anew. It will coordinate its table of descriptions more closely with the New York and San Francisco Boards. Thereafter, semi-annual review meetings will be held. F. J. Drake (BEA) headed the Paris Board meeting. When it next convenes, H. Schoening (Lufthansa) will preside.

It is emphasized that the specific commodity rate revisions are for intra-Europe shipments only. European freight destined to Asia, Africa, or the Middle East is not affected.

*this face
is making
many a shipper*

**FACE
THE
FACTS!**



In a recent direct-mail piece, we used this face to illustrate the guy who had "water on the brain" . . . who failed to realize that air can often be cheaper than ocean. We showed him and fellows like him a comparison of shipping costs on *just one shipment* . . . where air movement **SAVED THE SHIPPER . . . 9 DAYS' DELIVERY TIME . . . AND \$2,306.46!**

This proved to be "the face that launched a thousand quips!" Many shippers were incredulous. They thought we had chosen a fluke . . . a freak example . . . a rare shipment where unusual conditions favored air. But we are showing them that many another shipment, many another commodity, to many a world destination . . . benefits by the speed and actual savings of air movement.

We can show you, too. If your products are now being exported by ocean, let us make a cost comparison for you. Movement by air — by Air Express International Corp. — can save you thousands of dollars. Find out about airfreight's low cost . . . at *no cost* . . . and with no obligation. Call or write today!

FREE — Write for our exciting folder — "*Water on the Brain*"... it will open your eyes, and show you thousands of dollars in savings.



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Ocean Freight Forwarder, Custom House Broker

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VOL. 28

MARCH, 1956

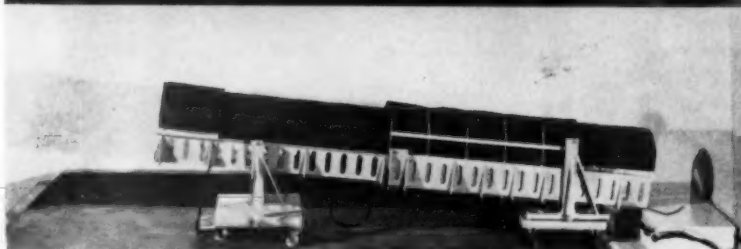
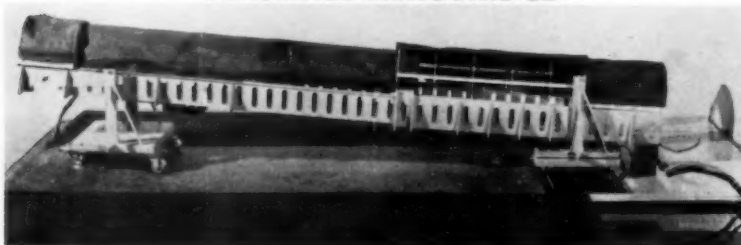
No. 3

10 MEN WITH BUT A SINGLE THOUGHT



... and that thought is cargo. Here, between conferences at United Air Lines' Denver Operating Base, are key men in the transcontinental airline's cargo setup. Objective: to make 1956 another record year for cargo airlift. Left to right (front row) are H. E. McKillop, cargo service chief, Chicago; S. J. Sherer, insurance claims manager; W. D. Dilworth, traffic manager; R. L. Mangold, cargo sales manager; (back row) G. E. Vance, cargo service chief, San Francisco; Bruce Bolton, cargo sales manager, Los Angeles; E. C. Mitchell, cargo service superintendent, Denver; W. F. Zoller, cargo service chief, New York; J. J. Hartigan, cargo sales manager, New York.

VERSATILE AEROBRIDGE



The United States Air Force has ordered two such Aerobridges, designed by Lockheed Air Terminal for the purpose of speeding cargo transfer between aircraft and air freight terminal. The Aerobridge, a self-propelled hooded ramp, has a telescoping extension which enables the facility to span distances from 64 to 84 feet. (Upper picture shows bridge extended to full length; lower picture shows it at normal length.) It can be moved up, down, sideways, in, or out. Bridging the gap between aircraft floors and loading piers of varying heights, the Aerobridge is said to eliminate the need for hoist trucks and multiple handling of cargo. Hoists mounted on movable dollies at either end support the bridge. Each end can be adjusted to heights of from four to 10 feet, independently of the other. This permits the floor of the bridge to be inclined in either direction—plane to dock, or dock to plane. Powered by an electro-hydraulic system, the Aerobridge can rotate through an arc of 180 degrees and move freely alongside a cargo dock. Heavy canvas hood is supported by steel tubing bows. Sides of the canopy can be rolled up or down. Hood will withstand winds of 60 miles per hour and snow loads of 20 pounds per square foot. It is possible to utilize gravity, powered belt, and two-way powered belt conveyor systems in the Aerobridge.

Annual Export Parley In New York Mar. 27-28

NEW YORK—The 36th annual convention of the Export Managers Club of New York, Inc. will be held in the Hotel Statler here, March 27-28. Theme of the 1956 parley is *E. P. D.—Exports Pay Dividends*.

Chairman of the big two-day meeting will be John A. Aron, manager, Tire Department, U. S. Rubber International, and vice president of the Export Managers Club of New York. The welcoming address will be handled by the club's president, N. S. W. Vanderhoef, vice president and director, Turner Halsey Company. Chairmen of the various sessions include William M. Chapman, director, Westinghouse Electric International Company; Harry S. Hower, Jr., export manager, Corning Glass Works; James C. Gilson, assistant to president, Pepsi-Cola International; and A. J. Molinelli, export manager, Chemstrand Corporation. All are club officers.

Copies of this issue of *Air Transportation* will be available to delegates at the parley.

Air Freight Service Opened by Allegheny

WASHINGTON, D. C.—Allegheny Airlines, which operates a scheduled service in the Middle Atlantic area, has inaugurated a freight service at 17 points in six states and Washington, D. C. Twenty-one additional points will be added March 19. Subsequent freight-service cities will bring the total to more than 50 cities.

The cities currently served are: Camden and Newark (New Jersey); New York; Cleveland; Dover (Delaware); Erie, Harrisburg, Philadelphia, Pittsburgh, Scranton, Wilkes-Barre, and Williamsport (Pennsylvania); Huntington and Parkersburg (West Virginia); Washington, D. C.

To be added March 19: Atlantic City, Ocean City, and Trenton (New Jersey); Buffalo and Jamestown (New York); Altoona, Bellefonte, Bradford, Clearfield, Dubois, Franklin, Johnstown, Lancaster, Oil City, Philipsburg, and State College (Pennsylvania); Baltimore, Hagerstown, and Salisbury (Maryland); Wheeling (West Virginia); Wilmington (Delaware).

Airwork's DC-6As to Slick

NEW YORK—The three DC-6A cargo-planes operated by Airwork, Ltd. in its recently suspended transatlantic all-freight operation (see *January, 1956 AT*) has been purchased by Slick Airways, transcontinental all-cargo carrier. Acquisition of the 300-a-mile-an-hour aircraft brings its total number of DC-6As to six, and its entire fleet to 26.



Gaskin
Air France

McCabe
Japan

Air Cargo) and James W. McLaughlin (ex-KLM) named senior cargo agent and cargo sales representative, respectively.

SAS: George Hertz promoted to manager of advertising and publicity in charge of the Western Hemisphere with the exception of Argentina, Brazil, Uruguay.

Aircraft Manufacturers

Cessna: Roy C. Russell, Wichita businessman, and Delbert L. Roskam, Cessna vice president, elected members of the board of directors.

Douglas: Harold G. Hynd elected vice president and general manager of the Tulsa Division, succeeding Harry Woodhead.

Piasecki Aircraft: Major General Gerald Joseph Higgins (USA, ret.) elected a director.

Company Traffic & Export

Pemco Corp.: Albert Kellner, export manager, elected vice president in charge of export.

Organizations

Air Cargo Inc.:

Emery F. Johnson, who has served ACI as secretary, vice president, and general manager, elected president.

Russell S. Bernhard appointed general counsel... Stuart G. Tipton, ATA president and Alexander G. Hardy, senior vice president of National Airlines, elected to the board of directors.

Air Transport Association:

Franklin Oelschlagger, ex-chief investigator for the CAB's Office of Compliance, appointed chief investigator of the Air Traffic Conference Enforcement Office, a new department of the ATA.



Johnson
ACI

Seaboard & Western Airlines recently rushed a \$1 million shipment of gamma globulin sent by the International Cooperation Administration to health authorities at New Delhi, India. The shipment contained



enough of the drug to immunize 100,000

people against jaundice and other diseases. Routing was via Frankfurt.

Canadian and American fruit wholesalers at the Mount Royal Hotel, Montreal, Canada, last month heard Charles L. Hood, Riddle Airlines' vice president-sales, point up the flexibility of air shipment and its direct relationship to the movement of agricultural perishables.

Hood related how Riddle's all-cargo service had developed new markets for fresh produce in order to create Northbound payload for Riddle's airfreighters. Consistent merchandising efforts resulted in tremendous increases for specific items of Florida produce, he said. (See May, 1955 AT.) He urged upon his listeners an educational campaign aimed at the housewife-consumer, who must be impressed with the true economy in the purchase of fresh-prepackaged produce. Among the factors which should be stressed to the consumer are elimination of waste through pretrimming of airborne green goods and the preservation of high nutritional values through delivery in hours instead of days or even weeks. With respect to retailers, the latter are vitally interested in the greater shelf-life afforded by air delivery, Hood pointed out.



Hood
Fly Produce

BUY EXPERIENCE!

FLY YOUR CARGO TO EUROPE AND THE MIDDLE EAST ON THE WORLD'S LEADING ALL-FREIGHT AIRLINE

Specify SEABOARD & WESTERN for your cargo to Western Europe and the Middle East and you buy the time-tested experience of the pioneer transatlantic all-freight airline. Every man at Seaboard & Western is an air-cargo specialist — because we concentrate on airfreight, with emphasis on bulk commodities!

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The only U.S.-certificated
transatlantic all-cargo
airline

United States Airlines



ASA: Donald C. Galloy appointed district manager for the Chicago area.

Delta: Charles P. Knecht formerly administrative executive-traffic and sales, named general sales manager . . . T. P. Delafield, moved

from general sales manager to director of customer services . . . Charles M. Mashburn elevated from Atlanta district sales manager to administrative executive-traffic and sales . . . Don Langland, assistant district sales manager in Chicago, upped to Atlanta district sales manager . . . Hal Salfen goes from director of military transportation to the newly created position of sales promotion manager . . . Henry Ross, Columbia sales manager, now serving as manager of military transportation . . .



Knecht
Delta



Rentzel
Slick



Bain
Northwest



Strehlke
Pan Am

Tom T. Oster and George E. Shedd now serving in the respective posts of agency sales manager and interline sales manager.

Northwest: Gordon M. Bain, executive vice president of Slick, succeeds James W. Mariner who recently resigned as NWA's vice president-sales.

Pan Am: George L. Strehlke, district sales manager at Chicago, promoted to interline sales manager-United States . . . Stuart Wooster, assistant district sales manager in Chicago, elevated to manager in that city.

Riddle: Captain George M. Hetterling appointed chief pilot.

Slick: Delos W. Rentzel, board chairman, elected president . . . Herman Ruppel, comptroller, takes on the additional office of treasurer.

United: B. B. Gragg, general manager of sales, appointed assistant vice president-administration. He is succeeded in his old position by Homer J. Merchant . . . Glenn Evers appointed district sales manager at Kansas City . . . Perry Y. Taylor appointed station manager at Pittsburgh . . . Edward H. Lewis and James T. Kerns named sta-

tion ground service managers at the respective cities of Kansas City and Fort Wayne.

Foreign Airlines

Air France: George F. Gaskin, cargo sales representative since May, 1953, promoted to Eastern district cargo sales manager . . . Philip R. Zito, with the airline since April, 1952, appointed assistant Eastern district sales manager, participating in both cargo and passenger sales promotion. (See Page 11.)

BOAC: G. S. McDougall, promoted from sales manager-Canada to manager-Canada . . . R. W. I. Geldard, station manager at Dorval, now serving as Montreal manager.

Japan: Robert J. McCabe (ex-LAI) succeeds Wallace Palmer as cargo manager for the San Francisco district.

Lufthansa: John A. Brower (ex-Acme



Gragg
United



Merchant
United

AIR FREIGHT FOR AUSTRALIA...OR POINTS WEST?



Qantas *knows* the South Pacific

Qantas Super Constellations fly regular schedules from Vancouver-San Francisco to: Honolulu, Fiji, *Samoa, *Tahiti, *New Zealand and Australia (immediate connections to all points), New Guinea, New Caledonia, New Hebrides, Solomons, etc. . . and points east: South Africa, Asia, Europe. Australia's Overseas Airline serves 5 continents and 26 countries.

Australia's

QANTAS

Overseas Airline

★ In association with TEAL



THE CARGO DOORS of the C-124 Globemaster yawn wide for the forward half of the H-21B Workhorse helicopter.

The Globemaster and Workhorse Team Up

AIRFREIGHTING helicopters is hardly new at this stage of the game, but never before has an egg-beater as big as the Piasecki H-21B *Workhorse* been transported as a piece of air freight.

Recent tests by the 516th Troop Carrier Group at Sewart Air Force Base, Tennessee, demonstrated the feasibility of such an operation. Without the need for overhead cranes and similar heavy equipment, a *Workhorse* was disassembled in 4½ hours, mounted on simple dollies, and loaded into a Douglas C-124 *Globemaster*.

The test under simulated emergency conditions, the 63rd Troop Carrier Wing was alerted simultaneously with the helicopter unit. While the *Globemaster* sped from its base in South Carolina to Sewart, disassembly on the *Workhorse* began. On arrival, the 50-foot helicopter (now in two sections) was rolled into the huge cargo hold of the airfreighter. A few minutes later the helicopter-toting C-124 was winging its way toward final destination—only five hours after the alert. And three hours after that, the *Workhorse* was flying under its own power.

What did the test prove? Major General Chester E. McCarty, Commander, Eighteenth Air Force, USAF, said:

"Airlift of HC-21s in C-124s permits utilization of the big rotary wing craft in remote areas where they have never flown before, delivery being made in hours instead of days. In emergencies, the time differential may be critical. Our five squadrons of helicopters are now air transportable to any point in the world where they are needed by the speediest possible method of transportation. . . .



NOSE HALF of the huge helicopter (minus rotor blades and a short drive shaft) is towed into the spacious cargo hold of the giant airfreighter. Fuel lines, control cables, and electrical systems of the



Workhorse have been disconnected. Aft section of the *Workhorse* (right) is now ready to move aboard. Airlift of the big helicopter in C-124s permits full utilization in areas never reached before.

ASA
Chicago—608 South Dearborn Street;
Donald C. Galloy, district manager.

Delta
Brooklyn — 200 Livingston Street (tickets only).
New York — 30 Rockefeller Plaza; 80 East 42 Street; 67 Broad Street; Statler Hotel; West Side Terminal (tickets only).

Newark—Newark Airport.

White Plains, New York—35 Manaroneck Avenue, (tickets only).

Sabena
Kansas City, Missouri—921 Walnut Street; Alan Citron, district manager.

United
New York—Fifth Avenue at 49 Street (tickets only).

United States Airlines

Flying Tiger: 1955 set a new record for the company, topping 1954 by 63%. All-cargo line flew 59,697,650 ton-miles of freight last year.
Pan Am: San Juan reports that 19,631,450 pounds of cargo were flown in

and out of that gateway last year, in contrast to 9,135,541 in 1954.

Seaboard & Western: Record total of 5,127,300 pounds of freight was hauled across the Atlantic in 1955. This represented a 33% increase over 1954. In addition, freight flights under military contract accounted for an additional 3,721,932 pounds.

United: January represented a new all-time high for that month. Freight (2,969,000 ton-miles) was up 7%, and express (1,020,000 ton-miles) rose 14%.

Foreign Airlines

Qantas: Just-issued report for the year 1954 (official red tape caused the delay) showed cargo ton-mileage at 8,236,657, in contrast to 7,334,923 in 1953.

Sabena: 1955 freight total for the system is represented at 25,037,216 ton-kilometers, compared with 22,410,496 ton-kilometers for the previous year.

CHARTER

The Aircoach Transport Association has opened its nationwide plane-chartering service, which, according to H. B. Johnston, president, is designed to make aircraft charter as easy as "chartering a bus, truck, or boat." ACTA is headquartered in the Wyatt Building, Washington, D. C. Offices are maintained at 10 locations in different parts of the country. (See *Come 'n' Get It*, Item No. 179.)

COMMERCIAL AIRCRAFT

Boeing: TWA, through the Hughes Tool Company, has contracted for eight *Jet-Stratoliners*. Approximate cost: \$4½ million each. Delivery of the 575-mile-an-hour transports will be made between April and August, 1959. Sabena, which previously had ordered three jet *Intercontinentals* (see February, 1956 *AT*), has purchased another one. The Belgian airline gets its first jet in December, 1959, and the fourth one in June of the following year.

Bristol: The *Britannia* 100, reputed to be the biggest turboprop in the world, has received its Certificate of Airworthiness in England. The British-made transport which reportedly carries a maximum payload of 25,000 pounds, including 90 passengers, a distance of 3,730 miles, or 12,250 pounds a distance of 5,170 miles, will be placed in operation by BOAC.

Convair: Iberia has ordered five *Metropolitans* (Model 440) for use on the Spanish carrier's continental routes out of Madrid. The airline is the eleventh commercial air carrier to have ordered this type of Convair.

Douglas: Two DC-8 jets have been bought by KLM. Aircraft and spares will cost the Dutch airline in the neighborhood of \$16.3 million. Delivery will be in the Spring and Summer of 1960.

Lockheed: The first of the four Super-
(Continued on Page 29)



PAGE 12—AIR TRANSPORTATION—Air Commerce

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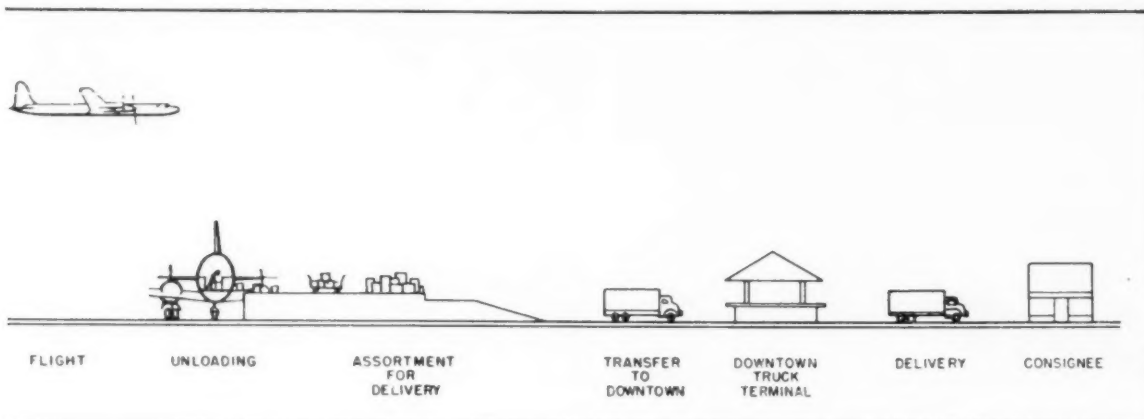
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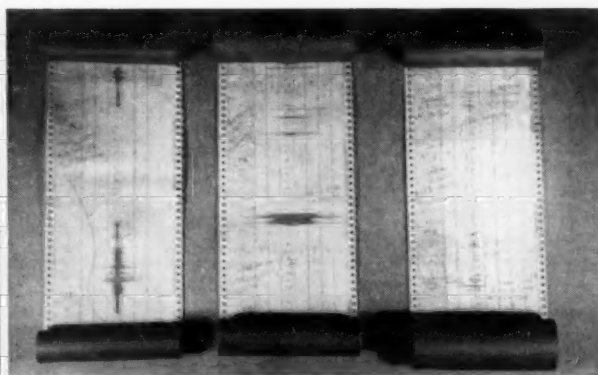


doing about keeping claims down? . . . Here's an eye-opener by America's No. 1 carrier of domestic airfreight.

About Air Cargo Shock Damage



Impact Recorder in shipping case.

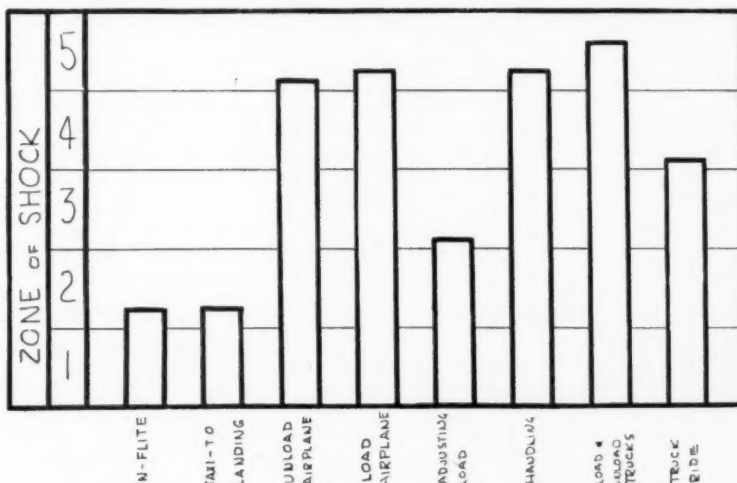


Sample tapes from Impact Recorder.

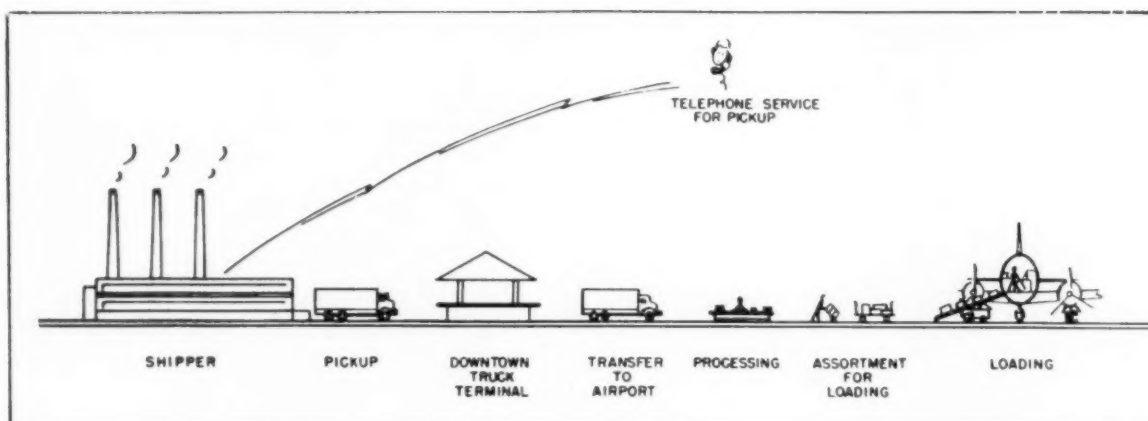
size and weight of the cargo handled increased. This, coupled with the great increase in volume, has posed new problems in the handling of air cargo with a minimum of damage. As terminals increased in size, the distances to the cargo facilities have increased in many instances to a mile or more. In most cities, hand-drawn carts are no longer adequate; 5,000-pound pieces are not uncommon. Volume has increased many-fold and we are faced with handling problems we didn't know existed 10 years ago.

Early Development

During the early stages of air cargo development, most emphasis was placed on the protection of the aircraft structure from possible damage as a result of shifting cargo during take-off and landing, vertical gust loads, turbulent



Maximum shocks recorded by category during the National Safe Transit Committee tests on all four major air carriers.



Ground-handling functions of an air cargo operation.

How is your air shipment treated en route? . . . Is it getting the careful handling it deserves? . . . What are the carriers

What Every Shipper Should Know

By A. C. BOTSFORD

*Supervisor of Cargo Handling
American Airlines*

THE presence of shock damage in the handling of air cargo has been recognized for a number of years. Of perhaps less general knowledge, however, has been the relative magnitude of shocks encountered while an air shipment is in transit through the various steps required to transport it from consignor to consignee. It is the intent of this article to discuss the present day relationship of these shocks; to demonstrate that the impacts received while on the aircraft are of low magnitude and briefly to review what American Airlines is doing to reduce shock hazard to air cargo.

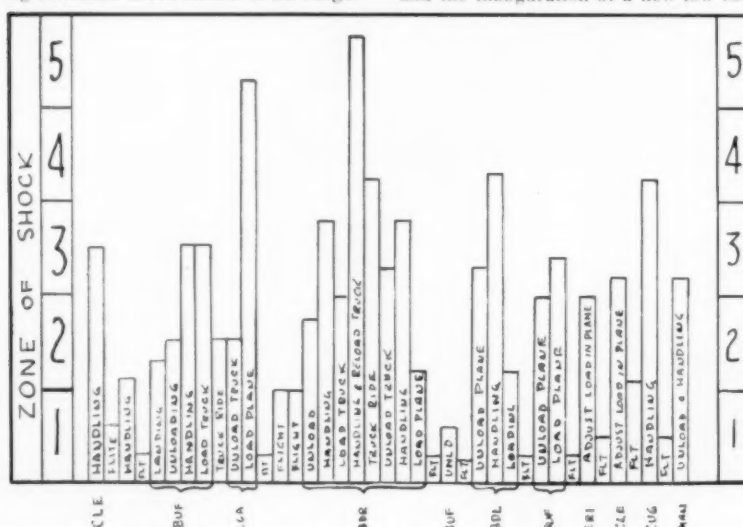
The volume of cargo carried by the airlines of this country prior to World War II was limited by the lack of adequate aircraft, high costs and poor service, together with a lack of knowledge on the part of the shipping public as to the greater advantages of shipping by air. With the introduction of larger aircraft to commercial operation after the war, increased schedule frequency and the inauguration of a new low cost

air freight service by American Airlines in 1944, cargo began to grow. The introduction of the DC-4 (and later the DC-6) to all cargo operations has helped keep the growth moving ahead at a healthy pace. American Airlines, in 1944, carried 5,389,226 ton-miles of cargo. Last year, the tenth anniversary of American Airlines' introduction of scheduled air freight service, we carried 64,410,243 ton-miles or almost 12 times as much as in 1944. The above figures include all air express and air freight.

The DC-3 Days

Back in 1940, most airlines operated DC-3 type equipment with approximately a 6,000-pound payload, schedules were infrequent, the size of the cargo compartments was limited, and the permissible floor loadings of the cargo compartments were low. Because of the limitations of the airplane, the size and weight of the cargo that it was possible to carry was limited. Hand-pushed cargo carts moving at slow speeds were adequate and individual pieces of cargo seldom exceeded that which could be handled by one man without mechanical assistance. Cargo facilities were small and could be located in close proximity to aircraft gate positions. With the low volume and light weight per piece, damage to shipments caused by shock were held to a minimum.

With the introduction of the larger aircraft such as the DC-6A with a 30,000-pound payload, and a cabin roughly the size of a railroad boxcar, the



Results of one of the first National Safe Transit Committee tests moving over American Airlines' routes.

AN AIR FREIGHT BLUEPRINT FOR 1965

By JOHN C. EMERY, *President, Emery Air Freight Corporation*

PART 2—THE SECOND DECADE

A ROCK-BOTTOM minimum target for air freight in 1965 should be revenue of \$200 million and ton-miles of one billion—or something like three times the revenue and volume today. For a maximum target, both figures can be doubled and still make sense. Actually I am so sure of air freight's economic soundness, and so convinced that relatively simple measures need to be taken to make the business flourish, that I believe it possible for the carriers to write their 1965 ticket at whatever level they like, and still make good on it.

The reasoning behind this forecast is easily expressed. Barring another war, the dominant factors in our national economy are the rate of increase in our population; the higher standard of living prevailing among ourselves and beginning to be noticed in foreign countries; the technological advances which are producing more things that people want at prices they can afford to pay, and the inflationary spiral which seems likely to continue. All these and other factors added together have led the Federal Government to estimate that the gross national product of the United States in 1965 will aggregate \$500 billions. Business activity makes traffic, of course, and so we can anticipate with at least equal certainty that a comparable increase in total domestic freight business and revenue for the carriers of all kinds will occur over the next decade.

As yet, air freight carries an almost imperceptible percentage of the national freight burden. For 1955, an estimate of no more than one-third of 1% is considered reasonable. Even if air freight does no better than hold its own with the other kinds of carriers, the increase in general business activity predicted for 1965 should provide air-freight traffic in that year to an

amount approaching 500 million ton-miles and revenue not far from \$100 million.

But air freight should not be content simply to keep up with the procession. It should grow much more rapidly than that, for several reasons. First, air freight has only begun to dig into its markets. It could scarcely be otherwise because air freight does not yet offer an adequate nation-wide service and because air-freight sales work has yet to reach the stage of deep or general penetration. Second, air freight offers one of the means—automation is another—by which continuously rising labor costs can be held in check and labor capacity saved for greater usefulness in other phases of our expanding national economy.

Distribution Costs

The point here is a little involved and it takes some proving in specific application, but perhaps I can make the principle clear in this way: The cost of distribution has been called the most challenging problem now facing industry. Distribution costs arise from a vast complex of retailers, dealers and distributors, and warehouses, sub-warehouses, and the machinery and people to operate them. By means of all these, industry seeks to be *near* enough to its customers to serve them properly and competitively. Emphasize that word "*near*" because it is important, multiplying many times the investment in facilities and payroll necessary to accomplish it. And now remember that air transportation eliminates distance, makes any part of the country *near* to all other parts. The opportunity for air freight here, in making it possible for sellers and buyers to be *near* each other without connecting chains of warehouses and warehouse employees, is

one of great magnitude if the carriers sell and perform as they should.

There is history as well as logic behind the estimate that air freight can and should far outpace the older carriers in the race for traffic over the next 10 years. That has occurred after the advent of each new form of transportation. For a few years, a new transportation simply shakes itself down into working position, acquiring in the main only traffic already existent but unsatisfactorily handled by the older competitors. Then, usually 10 to 15 years after the start, it begins to create a new traffic of its own, and not until then does it really start to roll up volume. This happened when the railroads first appeared to challenge the river and canal boats. It happened again in the 20s when the highway truck and trailer came along. I believe it will happen—is happening now—with air freight.

In summary then, we shall make no mistake if we set our tonnage and revenue targets high for 1965. The business will be there. We have only to prepare ourselves to get and move it.

But we must first expand sharply the scope and capacity of the air-freight network. It must be comprehensive of the entire continental United States, off-airline as well as on-airline. At least between each of the 60-odd production and distribution centers, there must be regular air-freight schedules which will move all air freight offered from each origin to each destination between the evening of one day and the early morning of the next. This will require careful scheduling directly between major cities and, indirectly by means of rapidly accomplished transfers, to and between all other centers. Second-morning delivery as a standard of air-freight performance must be scheduled

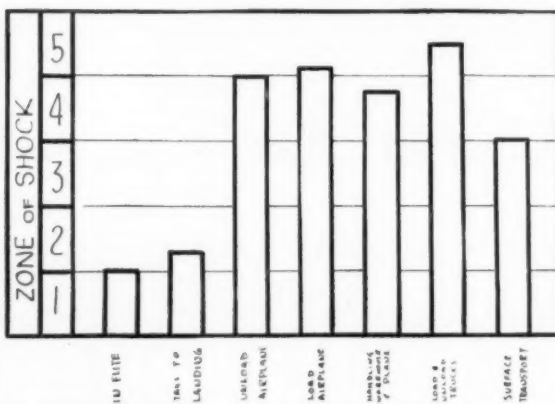
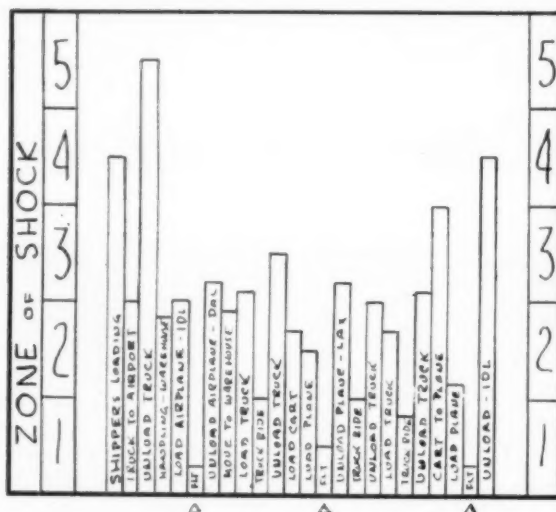
(Continued on Page 26)



Interior of DC-6A airfreighter.



Air freight unloaded by conveyor.



Maximum shocks recorded by assignable causes for five recent tests.

Results (left) of a test flight from New York to Dallas to Los Angeles and return nonstop to New York.

air and landing impacts. Through exhaustive tests on the part of the manufacturer and millions of miles of flight experience on the part of the airlines,

the magnitude of the loads imposed on the aircraft became known. Design criteria were established by the Civil Aeronautics Administration and manu-

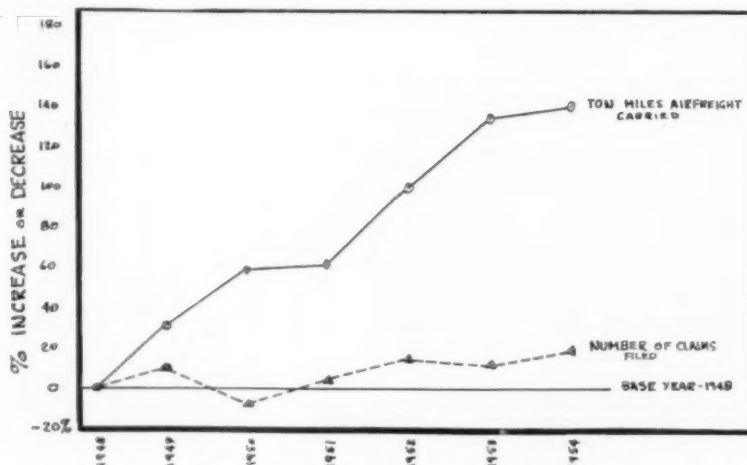
facturers have provided adequate structure within the airplane to withstand the loads safely. The airlines, working with the manufacturers, have devised systems of securing cargo within the compartments to prevent shifting and impact loads from damaging the aircraft and also from damaging other cargo.

It was only after the problems of shock concerning the aircraft were under control that interest was turned on the effect of shock on the shipment.

Step by Step

Before discussing our shock testing program, I believe we should take a look at the chronological steps that a shipment must move through when moving from consignor to consignee. Under certain conditions, one or more of these functions may be bypassed or combined. (See diagram of ground handling functions of air cargo.) For example, frequently the downtown truck terminal operation is eliminated

(Continued on Page 20)



Ton-miles carried by American Airlines versus number of claims filed, 1948-1954.

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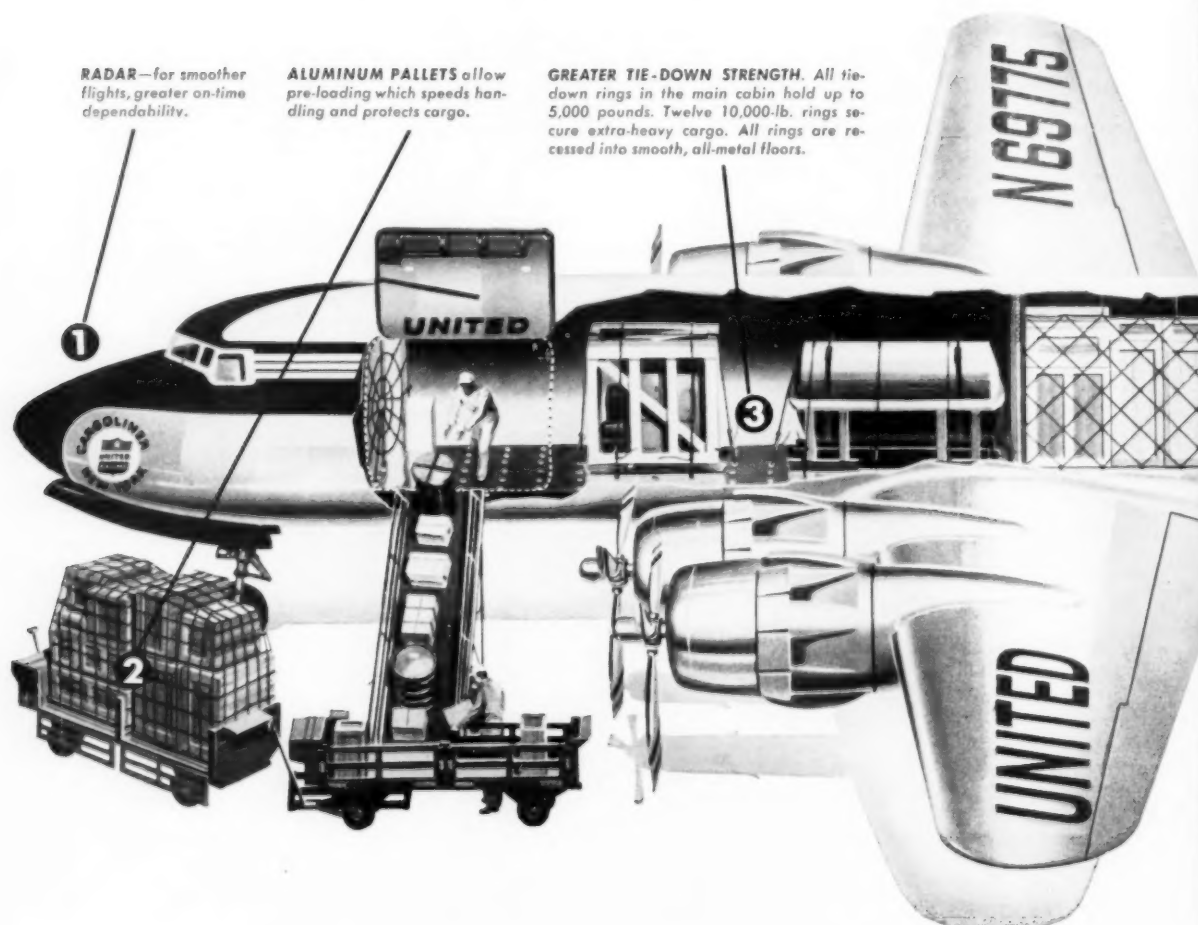
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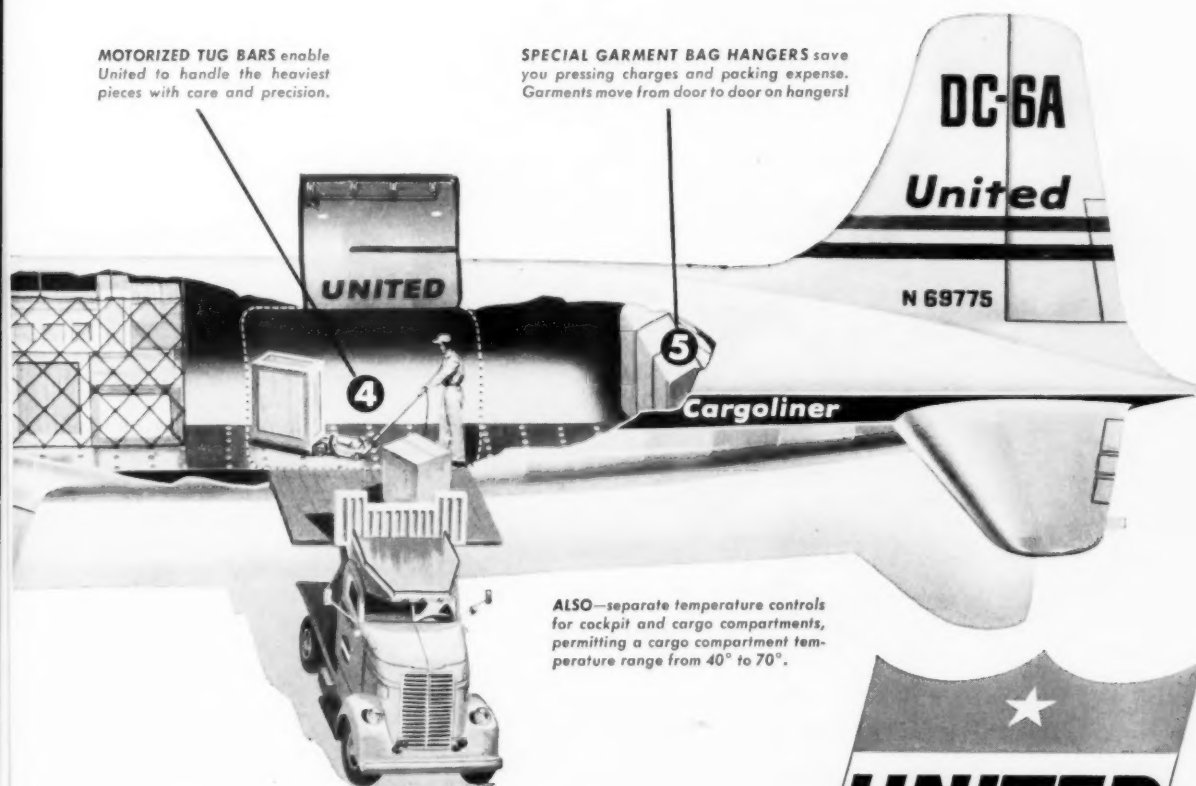
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AIR CARGO SHOCK

(Continued from Page 16)

and the pickup truck will come directly to the airport. On the delivery end, freight is frequently loaded onto the delivery truck sorted for zone delivery and no downtown terminal operation is involved. The obvious advantages that any elimination of a function provides is a savings of time and reduction in the number of handlings.

We started our shock testing program back in 1949 when the National Safe Transit Committee conducted a series of tests on four of the major certificated domestic airlines. American Airlines was one of the carriers chosen to participate in these tests. The results of these tests demonstrated that the major shocks registered during the entire series of tests were encountered during the ground handling operations. In no instance did shocks occurring during other operations approach those encountered in ground handling. Because these tests so graphically demonstrated a good practical method for us to locate areas of questionable handling, we purchased our own Impact Recorder and have, since late 1950, been making test shipments over our system.

Impact Recorder

The instrument used for the National Safe Transit Committee tests was an Impact Recorder which records shock vertically and horizontally and by means of a waxed paper tape and timing mechanism, preserves a record of all shocks that the recorder has been subjected to and the time of occurrence. The standard manner in which these tests were made was to mount two of the recorders in a wooden box located so they would record shock in both directions for each of the three dimensions of the box. The box and recorders weighed 73 pounds. The two recorders were used to be sure that reasonable shock measurements would be obtained in both vertical and longitudinal direction. In the tests that we have run subsequently, we have found that one unit suitably mounted in a box will suffice since, in all tests the greatest shocks occurred in the vertical plane.

In the picture of our unit mounted in one of the shipping cases, you may question the use of insulating material. The unit is really bolted directly to the case and not cushioned. We had to add the insulation to damp out the sound of the clock in the timing mech-

anism because cargo handlers were beginning to recognize the box from the sound emanating from it. The recorder indicates on the wax coated tape shocks from 0 to ± 10 Gs. The tape is arranged with the base or zero line in the center and on either side are five zones, each divided in half. Each of the five zones has a static calibration of 2Gs. Time is also indicated on the tape in hours. The unit holds sufficient tape to run approximately seven days.

It is estimated by the National Safe Transit Committee that an impact registering above the third zone of shock may cause shock damage to such items as refrigerators or washing machines. The damage sustained by any cargo will, of course, depend upon the strength of the container, the type and amount of cushioning, the nature of the cargo, as well as upon the magnitude and frequency of the impact.

Handlings Compared

We have been using our recorder primarily as a means of comparing handlings. Our experience indicates that most light weight products are usually packaged so as to withstand high "handling" impacts without damage and that fifth zone impacts can be recorded on such items without damage. We have been using the following guide to judge performance on a test run. We consider Zone 5 (roughly 9-10Gs) as being unsatisfactory, Zone 4 as borderline, and anything below as satisfactory. Frequency also plays a part in evaluating a test run, since many Zone 4 shocks could be considerably more damaging to a product than only one Zone 5 shock. I would like to emphasize that we do not know how much shock any specific item can take; we merely use the above as a guide to locate the areas of greatest shock. Note the picture of the three samples of tape taken from the recorder after a test run. The one on the left is representative of a truck ride with the shocks pretty much within the 1-2G range. Notice the frequency of the vibrations indicating bouncing on the road. The tape also indicates that the truck stopped enroute for 35 minutes, perhaps to make a delivery.

The center tape shows three types of handlings. The upper stylus lines are the result of unloading impacts at the terminal and loading on a cart. The markings just below the center are the result of a very rough cart ride from the terminal to the warehouse, and the lower markings are the result of loading a delivery truck at the warehouse. The tape on the right shows a complete cycle from cart to plane to

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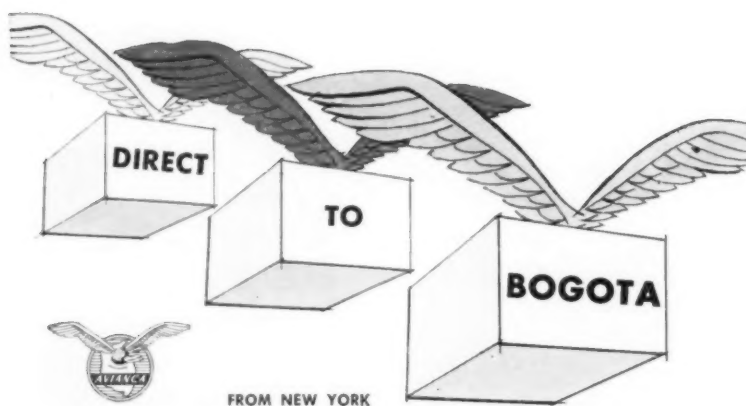
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cart. Notice how the inflight portion caused no impacts or vibrations to register at all. The landing and takeoff impacts were also of low magnitude—less than 1G.

Note the chart of the results of one of the first National Safe Transit Committee tests moving over American Airlines' routes made back in November, 1949. The test flight started in Cleveland and went through 12 other cities. The arrival and departure times were carefully recorded and compared to the times shock were recorded on the impact recorder tape. From the estimated elapsed times for loading and unloading, as well as arrival and departure times of pickup and delivery trucks, it was possible to break down the detail data into the major causes of shock sustained by the test package. The breakdown lists the maximum zone of shock registered during the test inflight, landing, loading and unloading the airplane, adjusting the load in the aircraft, terminal handling and loading and unloading of the pickup and delivery trucks. The shipment received its most severe shock as it was being picked up by our pickup and delivery service in downtown Boston. At this point, it received a 10G impact. The second highest impact occurred during the loading at Newark, at which time it received a 9G impact. Notice that at no time were the shocks incurred during the air portion of the test in excess of approximately 1.2G.

Next study the graph indicating the maximum shocks recorded by category during the National Safe Transit Committee tests on all four major carriers. The shocks attributable to air operation are small in magnitude. The ratio of the peak handling shocks to the aircraft shocks is in the order of two to one for the cargo shifting operation and approximately $3\frac{3}{4}$ to one for the truck loading operation. The aircraft loading and unloading shocks were $3\frac{1}{2}$ times the magnitude of the aircraft induced shocks.

Test Flight

Our most recent data confirms the findings of these early tests. Another chart reproduced here graphically shows the results of a test flight from New York to Dallas to Los Angeles and return nonstop to New York. On this trip, the maximum impact was experienced while unloading the truck at our warehouse in New York. On the tape the flight loads were so small they hardly registered. This record shows a rough cart ride to the airplane from the warehouse. This ride took place

at Los Angeles where the air-freight warehouse is about .8 mile from the ramp. This shipment moved on a combination passenger-cargo airplane. The truck rides registered impacts of only 4G. The aircraft loading and unloading impacts were smaller than those experienced in the National Safe Transit Committee tests.

A fourth shows the maximum shocks recorded by assignable causes for five recent tests. The causes and their relative magnitude remain approximately the same as was discovered in the National Safe Transit Committee tests. The maximum shock registered by the impact recorded while on the airplane in any of the tests was approximately 2.5G.

Tiedowns

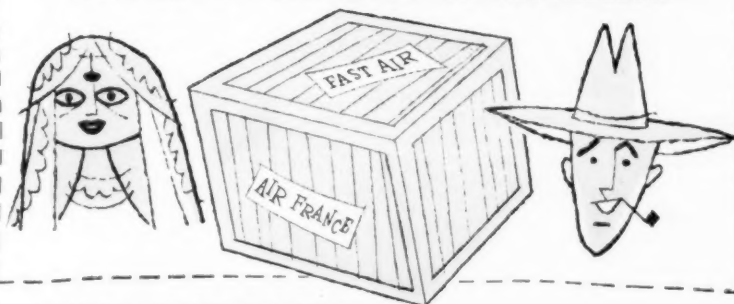
It has been estimated that for the cargo aircraft flying today, the maximum acceleration load that could be applied to cargo securely fastened to the structure is approximately 3Gs. Our tiedown procedures require that any item weighing 100 pounds or more be secured to floor tiedown fittings. Adjustable steel tiedown gear is used to secure the cargo to tiedown rings which are located on a 20-inch grid in the floor.

Average density cargo loads are secured by means of nylon nets which are fastened to the sidewall, thrown over the cargo and secured to the floor fittings with the cable tiedown gear. When full loads of low density freight are loaded, we use a solid load method. The freight is piled solid from floor to ceiling. Nets which divide the length of the cabin into seven sections are used to prevent fore and aft movement during landing and takeoff. Solid loading requires care in the selection of freight for stacking. One of the causes of damage is due to crushing of the container from normal static loads of the freight stacked above it.

Droppage and rough handling are responsible for a good part of the shock damage we experience. The line between rough handling and normal handling is very difficult to determine. Rough handling may be present wherever cargo is handled or transported. It may be present in loading and unloading by hand, stacking cargo on pallets, in a truck or in a plane, raising or lowering a fork lift, transporting cargo on fork lifts or hand trucks over rough pavement.

Our experience with the ride recorder has proven that the airplane presents little or no problems as far as shock damage to air shipments is

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concerned. To the best of my knowledge, little work has been accomplished with respect to the effect of vibration on air shipments except for some work done by Lockheed Aircraft with the Department of Agriculture assisting, and the now familiar studies performed by North American Aviation and Curtiss Wright. Our approach to vibration damage has been that in almost all cases if a unit is packaged well enough to withstand normal handling impacts, it will be sufficiently packaged to withstand any vibration encountered on the aircraft. The ground handling and

movement of air cargo, we feel, is the area where greatest improvement can be made.

We have recognized an area of our service which can stand improvement and will now review what we are doing to improve our shock damage record. First, there is the use of the ride recorder. The ride recorder helps us locate areas of high impact. It also helps us by the very fact that it is in circulation. We have found that careful handling follows the knowledge that test shipments are in circulation over the system.

Another way we are eliminating shock damage is by reducing handlings through the use of a control procedure to route freight by specific flights. By studying payload statistics, we know the availability of payload lift by each flight between each pair of cities. We also know the amount of freight which moves between each pair of cities. This is done by study of the airwaybills from each city to determine what tonnage moves to what points.

By studying the demand and availability, we prepare a routine guide which allocates for each city enough space weight to accommodate the normal demand to all other cities. What this has done is to eliminate the multiple rehandlings which used to occur when each station loaded freight on the first airplane out without taking into consideration the needs of other downline stations. When the demand exceeds the normal allocation, stations request additional space/weight from a central control point which is in close contact with the field and knows the system picture.

Improved Facilities

We have also been working at improving our warehouse facilities. At the outset of air freight business, we used corners of baggage rooms or hangars. No loading docks were available. During the last five years we have invested many dollars and given a lot of study to the building of new, or the major modification of, existing facilities. Our objective is to provide a smooth flow with a means of eliminating the difference in height between truck floors and warehouse floors by means of docks or truck wells and to provide means for segregating shipments without rehandling by the use of roller conveyors. We are experimenting with unit loads to combine small pieces into larger units which can move from one terminal to another without rehandling of the contents. The benefits of unit loading can, of course, be expanded when the consignor will provide us shipments in unit loads to move directly to the consignee. We have found that unit loading reduced the number of handlings while in our possession by four. The fewer handlings naturally reduce our exposure to damage. Most of our larger cities are equipped with warehouse type fork trucks so that cargo can be moved within the warehouse without multiple individual handlings. Pallet racks are also being used to prevent crushing damage and shock damage from overloaded pallets.

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are utilizing fork lifts and powered belt conveyors. We have been experimenting with a conveyor line unloading of our airfreighters at Los Angeles. This system takes the cargo from the door of the airplane and moves it by means of powered boosters and gravity rollers through the warehouse out to the dock to waiting trucks. The cargo is sorted by classification, i.e., "hold at airport," drayage delivery, etc., as it moves along the conveyor.

Within the airplane we have experimented with hand lift trucks and conveyors. One type of conveyor is made of aluminum and is in five-foot sections so that the line can be lengthened or shortened as required. For the handling of large shipments, such as J57 jet engines, we have modified high-lift trucks and are exploring the practicability of a large 18,000-pound capacity fork truck.

In all of our equipment experiments we have found that a particular piece of equipment will work well for certain items, but no single piece of equipment is the answer for all of our handling problems. For example, the conveyors work well for general-run freight, but are of little use when loading an aircraft engine. Our job is to find the correct balance of this equipment to fulfill our overall requirements.

The best of equipment and facilities will not solve the handling problem if it is not backed up with a good practical training program supported by good supervision.

Teaching "Why"

A big part of training is getting across to the cargo handler the "why" of what he is requested to do. A good example of how this works is in our recent experience with cut flowers. We had several flower shippers put on a demonstration of what could and could not be done with flowers from a handling viewpoint. They dropped boxes of orchids and opened them to show what happened to the flowers. They demonstrated different methods employed in the packaging of various types of flowers. When the handler saw what rough and careless handling actually did to the flowers, he became more careful and treated the cartons with more respect. We try to furnish our field personnel with as much of this type information as we can develop. Cargo handlers, as a group, are normal human beings—they do not willfully toss and drop cargo. They perhaps get careless at times but, like safety, you cannot legislate careful handling—you must educate the people involved.

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receive classroom training as well as practical training in the actual operation of handling equipment. The training program is developed on the General Office level and administered in the field. We make use of training outlines, film strips, and visual aids. To assist our sales and operations people in determining the causes of damage to shipments, we have issued a *Packaging and Inspection Guide*. From a claims standpoint, we require an inspection to be made of each damaged shipment. The reports are used to gather data on the type packaging which gives trouble for specific types of merchandise. This information is invaluable when we are called upon to assist shippers with their packaging problems. The *Guide* provides some basic information to help the person making the inspection determine the cause of damage.

All of the above might lead one to believe that we experience a great deal of damage. We do not. As a matter of fact, we believe that we have one

of the most favorable claims pictures in the transportation industry. While our ton miles of air freight carried since 1948 has increased 140%, our claims filed has increased only 19%. Since we have no control over the number of claims filed, we feel that this is a good measure of our improved handling. By the comparison which is usually made, gross revenue to the percent of gross revenue paid out in claims, we show up even better. Our gross revenue since 1948 has increased 170% while the percent of gross revenue paid out on claims has decreased 45%.

We do not claim all the credit for our improvements. We know that the tremendous increase in interest and knowledge of packaging to prevent shock and vibration is a major contribution to our improvement. We will continue to work toward the improvement of our handling techniques and know that, with the help of the shock, vibration and packaging engineers, will continue to make forward strides.

• • •

AIR FREIGHT BLUEPRINT

(Continued from Page 17)

and operated out of all normal existence, at least so far as these 60-odd large population and freight centers are concerned.

These routes, direct and interline, must all be covered by cargo equipment as well as combination aircraft. This is essential if routine reliance on air freight is to win the acceptance of shippers. Do not be deceived by the small percentage of air-freight shipments which physically must move on cargo planes. To sell a shipper on routine as opposed to emergency use of air freight, an air carrier must be able to take what comes, large or small, heavy or light, within much more reasonable limits than the narrow capacities of passenger planes. An air carrier

can use combination equipment as an effective and economical supplement to cargo equipment, but the cargo equipment on all main routes is a prime essential.

Finally, the air-freight route pattern must be extended to the thousands of smaller communities, if the traffic potential is to be fully realized. Here combination equipment via branch and feeder lines is probably the best answer, but it must be backed up by surface transportation on schedules carefully coordinated with the air schedules, and by operating skills to make the coordinated schedules work. The fact that a shipper is located 50 or 100 miles from an airport should not limit him to second-rate air-freight performance. Airplanes are now so fast, requiring so few of the night hours to traverse long distances, that there is sufficient time between the close of

business on one day and the opening on the next for air freight to range quite widely through connecting surface or feeder air carriage.

In a few words then, if air freight is to grow at the speed of which it is capable, a primary requirement in our blueprint for 1965 is complete air freight service coverage of the whole United States, and a standard of performance which will make "overnight, anywhere" not only a slogan but an actuality.

Equipment and Facilities

When it comes to the question of air and ground equipment and facilities needed, I am afraid that I must defer to others. I simply do not know enough about the subject to discuss it intelligently. In fact, I am so ignorant as to believe that we do not need to wait for the ideal freight airplane and the perfect air-freight terminal before going all out to develop the air-freight business.

Now I must be wrong about this. There are quite a few airlines which do not haul enough freight to fill a hat, and when I have asked their executives why they are so reluctant to get into the freight business, they all say about the same thing:

"We are not reluctant. Far from it. We're just waiting until we find an efficient freight airplane. And after that, we have to devise an efficient freight terminal. We're working at it all the time. We want to go after freight, hammer and tongs, but first we must get the right plane and the right terminal setup."

That is what they say, and the years roll by.

Other airlines though, and fortunately, have been a little less choosy. They have made do with C-46s and DC-4s and DC-6As, which seem like pretty good planes to me, and if they have not provided the ultimate in efficient terminal facilities, they have

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adapted a few old hangars to the purpose fairly effectively, and meanwhile they are in business and making profits from freight, and gaining the respect and acceptance of their customers to a degree which will mean a great deal when the perfect equipment does come along.

Please understand that I am as anxious as anyone to see in freight service equipment and facilities which will be efficient and economical. They are the key, of course, to reduced air-freight rates and increased—or initial—air freight profits. I don't know whether it calls for a high wing or a low wing, but I do know that an airplane which can be loaded and unloaded rapidly and economically by machines or conveyors, instead of slowly and awkwardly by manpower, will be utilized more intensively and will turn out more ton-miles per day at less cost, and I am for it. But I doubt that these new airplanes and loading devices are an absolute prerequisite to successful and useful freight operations, and I wish we did not have to stand still waiting for them. I wonder what the volume of the airline passenger business would be today if the airlines were still waiting for the perfect passenger plane and the ideal airport terminal.

Requirements for Future

Our blueprint for air freight in 1965 must, of course, specify well-designed freight aircraft, of large capacity and enough speed to carry out the "overnight" performance plan. It must also provide for sorting, loading, and unloading facilities which will be equally adapted to the nearby handling of freight planes and the distant loading and unloading of combination equipment. There must be adequate provision to accommodate both local delivery and line-haul highway trucks which will bring air freight to and take it from the terminal. But exactly what all these essential items will look like, I must leave to others better qualified than myself. I simply hope we shall have something at least reasonably adequate to work with.

Certainly our 1965 blueprint must call for something in the way of reduced air-freight rates, but here again I am afraid I am something of a maverick. The president of a cargo airline a short time ago expressed the conviction that we have gone about as far as we can go in building up air-freight volume at present rate levels. Further reductions, he indicated, are necessary if air-freight volume is to increase more than slightly in the years ahead.

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With all respect, I cannot agree with this estimate. The desirability of reduced air-freight rates as one means of broadening the market rapidly and developing increased tonnage quickly is neither doubted nor argued. It is axiomatic that increased volume in sales results from product improvement and price reduction. But we should put rate reductions where they belong in our planning, and that is

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definitely secondary to expansion of capacity and improvement of air-freight performance, and development of air-freight earnings for the carriers out of which rate reductions can be offered without elimination of the profit motive.

My reasoning on this is quite simple. Air freight has been, is, and always will be a relatively expensive form of freight transportation. Nowhere in the foreseeable future is there a prospect for air-freight rates competitive with rail- and motor-carrier rates. We are compelled, therefore, to visualize permanently the sale of air-freight service at premium rates, and a little premium is as unacceptable as a larger premium to a traffic manager who must and should buy the lowest carrier price for the service that he wants.

In this circumstance, primary emphasis must be put into making air freight a service of premium value, in speed, availability, and dependability. Service of this kind can be sold, widely and consistently, at a premium price, and the precise amount of the premium is not so important. Put another way, a traffic manager can better afford to pay a stiff premium for the quality of service that he wants, than he can afford to pay a small premium for a service little or no better than he can buy at surface-carrier prices.

Within 10 years, given better equipment, greater volume and reduced costs based on volume, air-freight rates should be less than they are today, widening still further the market for superior air-freight service. But we have by no means exhausted the market for a good air-freight service at present prices. The first consideration in the interest of carriers and customers alike, is air-freight service expansion and performance improvement. Reduced rates, a secondary consideration, can come along later.

Interline Through Rates

There is one respect, however, in which a basic rate change needs to be provided now, as well as written into the 1965 blueprint. It is the provision on a comprehensive scale of interline through-freight rates by airlines. The air-freight market is a national market. In selling air freight, the carriers are talking to traffic managers who are interested not only in moving freight from A to B, but from A to a score or a hundred or a thousand places throughout the United States. With no single airline serving the whole country, the lack of through rates means that the traffic manager must consider the use of air freight under a price pattern studded with costly combinations of local rates.

We have interline passenger planes today. In the course of time—and perhaps by 1965—we should have interline cargo planes. Bind them together then with interline rates, and we shall have a national air-freight transportation system to match the national character of the air-freight market.

In writing a specification for air-freight selling in 1965, we start from the premise that the cards are stacked against us. We have to sell traffic managers—a hard-headed, tight-fisted group who have forgotten more about traffic and transportation than most air-freight salesmen have yet learned. It is the duty of a traffic manager to buy the transportation service his company requires at the lowest available rate—and air freight does not ordinarily offer the lowest available rate. Therefore, our sales problem is clean-cut, and it will not be solved by handing the traffic manager a cigar.

Accent on Value

The air-freight salesman in 1965 or any other year must be prepared to sell air-freight service for its value, in spite of its price. He must be able to convince the traffic manager that speed—dependable speed—can be converted into an over-all production or distribution economy even when a premium transportation rate is involved. He must sell the principle of "nearness by air," and present and hammer home the comparative costs of controlled transportation including air freight on the one hand, and cheap transportation plus warehouses plus payroll on the other.

There is both discouragement and encouragement in this situation confronting air-freight selling. The discouragement arises from the size and complexity of the market for transportation with which the air-freight salesman, to be successful, must be intimately familiar. The encouragement comes from the quality of the traffic managers with whom air-freight salesmen are and will be dealing, and the willingness to be convinced that they have already displayed so unmistakably. These men can be sold air freight if the performance-price package makes sense, and it can make sense.

On 1965 specification for air-freight selling, therefore, is easy to write. It starts with research—air-carrier research—through which can be learned the motives, the machinery, and the methods of industrial production and distribution. This is the sort of research that has been started through the Harvard Graduate School of Business Administration by four air carriers, and which should be continued in one way

or another. (See August, 1954 AT.) Air carriers cannot know too much about the industries and companies to which they are selling air freight.

To utilize the results of market research, we need an unusual type of air-freight salesman. Ideally he should be a combination of one part salesman, one part operating man, two parts industrial engineer, and a dash of the economist. Bear in mind that in 1965 his sales talk must be something more than: "Railway express costs \$5.65. Our rate is \$5.60. How about it?" Instead, most of the time, he is going to have to say, "Mr. Traffic Manager, I think you can pay more for transportation—air-freight transportation—and still save money. Here's how"—and then tell him.

Our air-freight salesman is going to have to know other kinds of transportation as well as he knows his own. He is going to have to know how to move freight offline as well as online, and off-airline in addition. He is going to have to know how to explain the unique economies inherent in the assembly and distribution services of the air carriers. And finally he is going to have to be patient because creative selling, which air freight needs, does take time.

How many air freight salesmen should be provided is a question no one yet can answer. It is difficult to conceive of a company which is not in some degree a present or prospective air freight shipper. Each of them must be reached, offline as well as online, directly or through advertising. Selling freight service by advertising used to be considered a waste of time and money by most carriers, but as the airlines have proved in the phenomenally successful promotion of their passenger business, it is just as possible to adapt proven selling and merchandising methods to transportation as to any other consumer or industrial product.

Smart Selling

To summarize, then, air freight selling in 1965 can, and, I think, must have a quality not previously characteristic of carrier sales departments. It must be selling based on knowledge and the application of that knowledge in a myriad of production and distribution situations. It must be selling that recognizes air freight as only one of a broad array of excellent transportation media—water, rail, and highway—with which this nation is blessed and that works toward the goal of bringing air freight into its proper place in the network. Backed by air-carrier management support and oper-

ating performance, this kind of selling cannot fail.

It has been my privilege to be associated with air freight from its inception. I believe in its future and am confident that it will provide the solution of many of the economic problems which confront the nation and the world today. It is a factor of incalculable importance also to our national defense. Air freight can, must, and will grow with giant strides in the next decade. • • •

COMMERCIAL AIRCRAFT

(Continued from Page 12)

G Constellations ordered in August, 1954, has been received. Named *Pegasus*, it will go into operation over the North Atlantic. Complete balance of the order may have been received by the time this issue comes off the press. . . . Contract between Lockheed and Slick Airways, calling for three *1049H Super Connie* airfreighters, has been dissolved. Slick recently purchased three DC-6As from Airwork, Ltd. The *Super Connies* had been ordered for 1957 delivery.

The Aircraft Industries Association of America, Inc., issued the following roundup based on record orders placed by United States airlines last year:

"The nation's scheduled airline operators, backed up their belief in the superiority of American manufactured equipment with more than \$1,309,600,000 worth of jet, turboprop and piston engined transport plane orders in 1955. This unprecedented flood of firm orders placed by United States scheduled airlines does not include orders for hundreds more piston, turbojet and turboprop-engined airliners placed by foreign flag airlines. Biggest purchases made by the scheduled airlines during 1955 were the more than \$761,300,000 in firm orders for 135 turbojet airliners. Another flood of orders for 75 turboprop powered transports totaled \$265,000,000. In addition, the airlines also placed orders for 55 big new piston-engined transports at a total cost of more than \$137,300,000.

"United States airline industry backlog for all types of civilian transports by year-end 1954 totaled only \$270,000,000, and both United States aircraft manufacturers and airline operators were more than a little alarmed at the apparent inroads in airline travel being made by the British airlines. The British aircraft industry had jumped the gun on the United States in turbojet and turboprop powered commercial transport while this nation's manufac-

turers concluded their research, development and testing of various jet applications to airline transport. But by December 1955, the United States aircraft industry backlog for these luxurious jet powered giants had skyrocketed to more than \$1,309,600,000, setting an all-time high in civil aircraft manufacturing history. Thus, the nation's plane makers gained a decided lead in their race with Great Britain's aircraft industry attempt to capture world airline turbojet and turboprop transport market. It also reaffirmed the United States airline industry reliance on the quality and economy of United States manufactured aircraft and engines."

Riddle and REA Sign Air Express Agreement

NEW YORK—An agreement with the Air Express Division of Railway Express Agency has made Riddle Airlines the first domestic all-cargo airline to fly express. The pact, inked by C. J. Jump, vice president, Air Express Division, and Charles L. Hood, vice president-sales, Riddle Airlines, brought to 31 the number of domestic scheduled airlines currently hauling express.

Riddle began transporting express immediately to all its points. With the scheduled opening of freight service to Indianapolis, Louisville, Columbus, and Richmond on March 1, Riddle will include the handling of express.

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General Commodity Rates Of Scheduled Domestic Airlines

Air cargo rates in this section represent 39 key shipping points located in every part of the United States, served by the scheduled domestic airlines.

The rates printed herein reflect the various general commodity air freight tariffs. The reader's attention is drawn to the rate variations which occur in certain instances between the same two points. This section has been designed to show the rate spread between such points, without indicating the actual services. (See Notes.) The lower rate generally indicates direct service between both points; the higher rate, in many cases (when the rate spread is big), indirect service.

It is stressed that the scheduled airlines offer **Specific Commodity Rates** which are substantially lower than the General Commodity Rates shown herein. For a free copy of any one or several Air Freight Memorandum Tariffs of the airlines, including the lower Specific Commodity Rates, we suggest that you take advantage of the coupon appearing in this section. Air Transportation's Special Service Department will arrange for delivery of the Air Freight Memorandum Tariffs.

These rates are designed to form a basis on which shippers may analyze their shipping costs. Important: These rates were current at presstime. All rates are subject to change.

NOTES

Column (1) contains airport-to-airport rates per pound, figured in ¢, for shipments up to and including 99 pounds.

Column (2) which is figured in \$, contains airport-to-airport rates for shipments 100 pounds and over.

Where one rate is shown, this indicates a single rate is adhered to by all the carriers serving the two connecting cities.

When rates are shown in multiple, this indicates the span from the lowest to the highest rate charged for air freight shipments between the two connecting cities by different airlines. Example: 21.35-7 means a spread of from \$21.35 to \$21.37. Also, 3.99/4.78 means a spread of from \$3.99 to \$4.78.

For lower rates covering shipments of a minimum of 15,000 pounds, apply to airline.

Before determining your rate, be sure to consult the table of Minimum Charges.

MINIMUM CHARGES PER SHIPMENT		
Airline	Charge	Weight
Allegheny	\$4.00	
American	4.00*	or 50 lbs.*
Bonanza	3.00	
Brantiff	4.00*	or 50 lbs.*
Capital	4.00*	or 25 lbs.*
Central	3.00	
Colonial	4.00	
Continental	4.00	
Delta	4.00*	or 50 lbs.*
Eastern	4.00	
Flying Tiger	4.00	
Frontier	3.00	
Mohawk	3.00	
National	4.00	
New York	4.00	
Northeast	4.00*	or 50 lbs.*
Northwest	4.00*	or 50 lbs.*
Piedmont	4.00	
Riddle	4.00	
Slick	4.00	
Southwest	2.00	
Trans-Texas	4.00*	or 25 lbs.*
Trans-World	4.00*	or 50 lbs.*
United	4.00*	or 50 lbs.*
West Coast	3.00	
Western	4.00*	or 50 lbs.*

* The minimum charge is determined by whichever rate is higher.

PICKUP OR DELIVERY CHARGES						
Airport	Area	Per CWT	Volume Shipments Per CWT			
			Minimum Charge	2500 lbs.	5000 lbs.	10,000 lbs.
Atlanta	A	\$ 50	\$1.25	\$ 37	\$ 32	\$ 27
	B	50	1.85	37	32	27
Baltimore	A	55	1.30	54	53	52
	R	80	2.10	74	68	62
Boston	A-B-C	55	1.25	46	43	39
	D	85	1.80	76	73	69
Buffalo	A	40	1.35	39	33	27
	B	55	1.35	39	33	27
	C	75	1.35	64	58	54
Charleston, S. C.		55	1.10	55	55	55
Chicago	A-B-C	60	1.65	50	45	35
	D	55	1.20-35	47	38	27
Cincinnati		70	1.75	47	41	37
Cleveland	A-B	75	3.00	70	65	60
	C	40	1.10	29	23	20
Dallas	A	45	1.15	42	37	32
Dayton	B	55	1.35	42	37	32
	A	55	1.30	45	35	30
Denver	B	75	3.50	65	60	55

PICKUP OR DELIVERY CHARGES						
Airport	Area	Per CWT	Volume Shipments Per CWT			
			Minimum Charge	2500 lbs.	5000 lbs.	10,000 lbs.
Detroit	A-E	60	1.45	51	43	37
	B-D	85	1.85	74	68	62
	C	1.00	2.50	89	78	67
Fort Wayne		55	1.10	45	40	35
Fort Worth		55	1.25	45	40	35
Hartford	A-D	55	1.10	42	37	32
	B	65	1.45	54	48	46
	C	75	1.60	69	63	57
Houston		55	1.25	39	33	27
Indianapolis		40	1.25	39	33	27
Kansas City, Mo.		60	1.20	49	44	38
Los Angeles	A-B-C	65	1.40	49	43	37
Louisville	A	60	1.40	54	48	42
	B	60	2.50	84	48	42
Memphis		45	1.10	39	33	27
Miami	A-B-C	65	1.25	59	53	47
	D	90	2.50	89	88	87
	E	90	5.60	89	88	87
Milwaukee	A	50	1.50	40	35	30
	B	85	2.00	60	50	40
Minneapolis-St. Paul		50	1.15	45	40	35
Mobile		55	1.25	51	45	38
New Orleans	A	50	1.10	34	28	22
	B	50	1.50	34	28	22
	B*	78	1.65	71	57	45
New York	A**	1.05	1.75	79	63	52
	D*	1.70	2.60	1.29	93	77
	E**	85	1.75	84	83	82
	G**	1.05	2.10	1.04	1.03	1.02
Newark	A**	70	1.60	59	53	47
	B**					
Oklahoma City	A	60	1.20	59	48	42
	B	60	4.00	59	48	42
Philadelphia	A	60	1.55	49	38	32
	B	65	1.35	39	34	30
Pittsburgh	A*	50	1.35	49	48	47
	B*	55	1.60	54	53	52
	C*	70	1.75	69	68	67
	D*	75	2.25	74	73	72
Portland, Me.	50-65	1.00-25	50-65	50-65	50-65	50-65
Portland, Ore.	A-B	55	1.25	45	35	30
Providence	A-C	45	1.25	37	33	30
	B-D-F	85	1.50	79	73	67
	E-G	85	1.70	79	73	67

*—Personal effects assessed at \$1 per shipment.

**—Rates not applicable to flowers and plants.

†—Pickup from or delivery to steamship docks assessed at \$2.50 per shipment minimum.

‡—When pickup from or delivery to steamship docks exceeds 20 minutes, such service is assessed at a minimum of \$5 per shipment.

•—Additional charge of \$5.50 assessed for pickup from or delivery to steamship docks or U. S. Appraiser's Stores.

■—Does not apply to shipments of flowers over the services of American, Braniff, Delta, TWA, or United. Rate for pickup and delivery of flowers is 75¢ per bundle; no minimum charge.

◆—Deliveries to docks and U. S. Government warehouses on waterfront assessed at a minimum of \$5 per shipment. Does not apply to Slick or Flying Tiger.

•—Rates not applicable to cut flowers. Rate for this commodity is 65¢ per box.

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American	Colonial	Frontier	Northwest	Trans-Texas
Bonanza	Continental	Mohawk	Piedmont	Trans World
Braniff	Delta	National	Riddle	United
Capital	Eastern	New York	Slick	West Coast
				Western

DOMESTIC AIR CARGO RATES—Continued

PICKUP OR DELIVERY CHARGES							From →				From →				From →			
Volume Shipments Per CWT							Destination				Destination				Destination			
Airport	Area	Per CWT	Minimum Charge	2000 lbs.				(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	
				2000 lbs.	5000 lbs.	10,000 lbs.	15,000 lbs.											
Richmond	A	45	1 25	39	33	27	.23											
St. Louis	B	45	2 40	39	33	27	.23											
San Antonio		50	1 50	35	25	20	.15											
San Francisco		40	1 00	29	25	22	.18											
Oakland	A	65	1 45 1/2	49	38	27	.21											
Seattle	B	65	1 25	64	63	62	.61											
Toledo	C	1 00	2 00	99	98	97	.96											
		50	1 50	45	40	35	.30											
		45	1 35	39	33	27	.21											

GENERAL COMMODITY RATES							From →				From →				From →					
Destination							Destination				Destination				Destination					
Atlanta, Ga.	(1)	(2)	Baltimore, Md.	(1)	(2)	Boston, Mass.	(1)	(2)	Cincinnati, Ohio	(1)	(2)	Cleveland, Ohio	(1)	(2)	Dallas, Tex.	(1)	(2)	Fort Worth, Tex.	(1)	(2)
Atlanta, Ga.	.09	7.20	.09	7.20	.14	10.90			.09	5.00	.09	6.70	.11	8.80						
Baltimore, Md.	.14	10.90	.06-8	5.00-27	.06	5.00			.09	5.84	.08-10	5.70-8.15	.16	14.20-1						
Boston, Mass.	.11	8.30	.07	4.78	.08	4.95/5.27			.11	9.24	.09	7.00/8.00	.20	18.60						
Buffalo, N.Y.	.05	3.90	.08	6.10	.13	9.80			.08	5.27	.07	4.78	.16	14.74						
Charleston, S.C.	.09	7.20	.10	7.57-8	.12-3	10.34-80			.08	6.70	.09	7.80	.15	11.90						
Chicago, Ill.	.09	5.00	.08	5.84	.11	9.24			.05-7	3.40/4.78	.07-9	4.65/7.00	.12	10.35						
Cincinnati, Ohio	.09	6.70	.08-10	5.70-8.15	.09	7.00/8.00			.07	3.72/4.78	.12-3	9.90/10.35/14	.14	12.54						
Cleveland, Ohio	.11	8.80	.16	14.20-1	.20	18.60			.12-3	9.90/10.35/14	.14	12.54	.14	12.54						
Dallas, Tex.	.11	8.80	.16	14.20-1	.20	18.60			.10	8.15	.09	6.42	.19	17.51						
Dayton, Ohio	.11	8.80	.16	14.20-1	.20	18.60			.13	10.90-2	.15	13.00-3	.04-6	3.55/4.20						
Denver, Colo.	.09	5.00	.08	5.84	.11	9.24			.07	2.57/4.78	.07-8	4.30/5.27	.14-6	11.30/12.02						
Detroit, Mich.	.10	7.20	.08-10	5.41/7.58	.10	8.15-20			.09	6.99	.11-4	9.24-5	.08-10	6.04-70						
Fort Wayne, Ind.	.10	7.20	.08-10	5.41/7.58	.10	8.15-20			.24	21.95	.26	24.25-6	.16	14.74						
Hartford, Conn.	.11	8.80	.16	14.20-1	.20	18.60			.08	5.84	.10	8.15	.07-8	5.84/6.05						
Houston, Tex.	.11	8.80	.16	14.20-1	.20	18.60			.14	11.40	.16	12.50	.17	13.50						
Indianapolis, Ind.	.07	5.60	.09	6.42	.12	10.34-5			.07	7.47	.09-10	4.05/8.15	.13	10.92						
Indianapolis, Ind.	.07	5.60	.09	6.42	.12	10.34-5			.10	7.00	.14	11.90								
Kansas City, Mo.	.13	9.80	.16	11.43	.17	14.73/15.31			.11	8.80	.07	5.60								
Los Angeles, Cal.	.28	26.57	.31-2	30.00-3					.15-6	13.12-60	.10	8.60	.21-4	19.70/20.90						
Louisville, Ky.	.06	4.50	.08-9	6.10-42	.12	9.80/10.35			.04	2.60	.14	12.54	.09	7.00-40						
Memphis, Tenn.	.06-7	4.50/5.50	.12	9.82	.15	13.00-63			.14-7	12.54			.19	17.51						
Miami, Fla.	.09	7.80	.14	11.40	.18	14.60			.10	7.00	.14	11.90								
Milwaukee, Wis.	.10	8.15	.13	10.80-92					.16-21	12.60/14.90	.04-6	3.55/4.20	.10	17.20/18.02						
Minneapolis/St. Paul, Minn.	.06	4.50	.12	9.50	.17	14.00			.09	6.99/7.00	.08-10	6.04-70	.16-7	14.21-50						
Mobile, Ala.	.06	4.50	.12	9.50	.17	14.00			.24-7	21.90-5	.16	14.74	.31-3	28.80/29.46						
New Orleans, La.	.07	5.60	.13	10.40	.19	15.60			.07	3.72/4.78	.14	12.54	.04-7	2.13/4.78						
New York, N.Y.	.11	8.80	.04-7	3.00/4.78	.04-8	2.90/4.85			.07	2.57	.12-3	9.90/10.35/10	.8.15							
Newark, N.J.	.11	8.80	.04-7	3.00/4.78	.04-8	2.90/4.85			.07	2.57	.12-3	9.90/10.35/10	.8.15							
Oakland, Cal.	.10	8.30	.04-7	3.00/4.78	.05-7	3.90/4.78			.10	7.00	.14	11.90								
Philadelphia, Pa.	.09	6.70	.09	7.00	.09	6.42			.10	7.00	.14	11.90								
Pittsburgh, Pa.	.09	6.70	.09	7.00	.09	6.42			.10	7.00	.14	11.90								
Portland, Me.	.09	6.70	.09	7.00	.09	6.42			.10	7.00	.14	11.90								
Portland, Ore.	.09	6.70	.09	7.00	.09	6.42			.10	7.00	.14	11.90								
Providence, R.I.	.13	10.40	.06-7	4.50-78	.04-7	2.30/4.78			.10	7.00	.14	11.90								
Richmond, Va.	.08	6.10	.04-7	3.00/4.78	.09	6.42			.10	7.00	.14	11.90								
St. Louis, Mo.	.08-10	6.10/8.00	.11	8.80/9.24	.14	11.90/12.54			.10	7.00	.14	11.90								
San Antonio, Tex.	.13	10.40	.18	16.93	.23	19.80/20.79			.10	7.00	.14	11.90								
San Francisco, Cal.	.29	27.15	.23-4	21.95					.10	7.00	.14	11.90								
Seattle, Wash.	.10	7.20	.08	5.41	.10	8.15-70			.10	7.00	.14	11.90								
Toledo, Ohio	.10	7.20	.08	5.41	.10	8.15-70			.10	7.00	.14	11.90								

From →							From →				From →				From →					
Destination							Destination				Destination				Destination					
Atlanta, Ga.	(1)	(2)	Buffalo, N.Y.	(1)	(2)	Chicago, Ill.	(1)	(2)	Cincinnati, Ohio	(1)	(2)	Cleveland, Ohio	(1)	(2)	Dallas, Tex.	(1)	(2)	Fort Worth, Tex.	(1)	(2)
Atlanta, Ga.	.11	8.30	.05	3.90	.09	7.20			.09	5.00	.09	6.70	.11	8.80						
Baltimore, Md.	.07	4.78	.08	6.10	.10	7.57-8			.11	9.24	.09	7.00/8.00	.20	18.60						
Boston, Mass.	.08	4.95/5.27	.13	9.80	.12-3	10.34-80			.11	9.24	.09	7.00/8.00	.20	18.60						
Buffalo, N.Y.	.09	6.42	.11	8.80					.08	5.27	.07	4.78	.16	14.74						
Charleston, S.C.	.09	6.42	.11	8.80					.08	5.27	.07	4.78	.16	14.74						
Chicago, Ill.	.09	5.00	.08	5.84	.11	9.24			.08	6.70	.09	7.80	.15	11.90						
Cincinnati, Ohio	.08	5.27	.08	6.70	.05-7	3.40/4.78			.07	3.72/4.78	.12-3	9.90/10.35/14	.14	12.54						
Cleveland, Ohio	.07	4.78	.09	7.80	.07-9	4.65/7.00			.12-3	9.90/10.35/14	.14	12.54	.14	12.54						
Dallas, Tex.	.16	14.74	.15	11.90	.12	10.35			.10	8.15	.09	6.42	.19	17.51						
Dayton, Ohio	.08	5.27	.08	6.70	.05-7	3.40/4.78			.12-3	9.90/10.35/14	.14	12.54	.14	12.54						
Denver, Colo.	.07	4.78	.09	7.80	.07-9	4.65/7.00			.12-3	9.90/10.35/14	.14	12.54	.14	12.54						
Detroit, Mich.	.07	4.78	.10	8.30	.06-7	4.00-78			.12-3	9.90/10.35/14	.14	12.54	.14	12.54						
Fort Wayne, Ind.	.07	4.78	.10	8.30	.06-7	4.00-78			.12-3	9.90/10.35/14	.14	12.54	.14	12.54						
Hartford, Conn.	.16	14.74	.15	11.90	.12	10.35			.10	8.15	.09	6.42	.19	17.51						
Houston, Tex.	.07	4.78	.11	8.80	.12-3	10.34-80			.12-3	9.90/10.35/14	.14	12.54	.14	12.54						
Indianapolis, Ind.	.09	7.00	.09	7.20	.04-7	2.90/4.78			.1											

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From —>	Fort Wayne, Ind.	Fort Worth, Texas	Hartford, Conn.
Destination (1) (2)	(1) (2)	(1) (2)	(1) (2)
Richmond, Va.	.15	13.63	.06-8 5.00-27
St. Louis, Mo.	.08-10 6.64/7.58	13	10.90/11.44
San Antonio, Tex.	.21	14.90	.05-7 4.30-78 .21
S. Francisco/Oakland, Cal.	.25-9 23.10/24.30	19	17.51
Seattle, Wash.	.24/30 21.95/24.00		.31-6 28.88/29.56
Toledo, Ohio	.047 2.60/4.78	.14	12.54

From —>	Houston, Tex.	Indianapolis, Ind.	Kansas City, Mo.
Destination (1) (2)	(1) (2)	(1) (2)	(1) (2)
Atlanta, Ga.	.11	8.80	.07 5.60
Baltimore, Md.	.16	14.60/74	.09 6.42
Boston, Mass.	.20	17.70/19.13	.12 10.34-5
Buffalo, N.Y.	.17	15.83	.09 7.00
Charleston, S.C.	.14	11.40	.09 7.20
Chicago, Ill.	.16	13.20/14.21	.04-7 2.90/4.78
Cincinnati, Ohio	.13	10.90-2	.07 2.57/4.78
Cleveland, Ohio	.15	13.00-63	.07-8 4.30/5.27
Dallas, Tex.	.04-6 3.55/4.20	.14-6 11.30/12.02	.08-10 6.04-70
Dayton, Ohio	.13	11.40-4	.07 2.57/4.78
Denver, Colo.	.14	11.60	
Detroit, Mich.	.17-9 14.30/18.02	.05-9 3.72/6.42	.10 8.15
Fort Wayne, Ind.	.16/21 12.00/14.90	.04 2.60	.04 2.60
Fort Worth, Tex.	.04-6 3.55/4.20	.14-6 11.30/12.02	.14-6 11.30/12.02
Hartford, Conn.	.19	17.20/18.02	.11 9.24
Houston, Tex.	.13	10.40	
Indianapolis, Ind.	.13	10.40	
Kansas City, Mo.	.10-2 8.50/9.80	.09 6.99/7.70	
Los Angeles, Calif.	.21	17.25	.22-4 21.35-7
Louisville, Ky.	.11-2 9.40/10.35	.04-7 2.30/4.78	.09 6.48
Memphis, Tenn.	.08-9 6.70/7.20	.06-10 5.60/8.15	
Miami, Fla.	.14	11.40	.15 11.90
Milwaukee, Wis.	.17	15.83	.07 4.78
Minneapolis/St. Paul, Minn.	.17	14.00	.08 6.80
Mobile, Ala.	.07	5.60	.09 7.80
New Orleans, La.	.05	4.50	.11 8.80
New York, N.Y.	.18	16.10/63	.11 8.73
Newark, N.J.	.18	16.10/63	.11 8.73
Oklahoma City, Okla.	.07	6.20	.11-3 8.73/11.44
Philadelphia, Pa.	.17	15.60-83	.10 7.57-90
Pittsburgh, Pa.	.15	13.00-63	.08 5.27
Portland, Me.	.29	27.40	.17 12.40
Portland, Ore.	.29	27.40	.17 12.40
Providence, R.I.	.20	17.70/18.60	.12 9.82
Richmond, Va.	.16	13.50/14.21	.08-10 6.70/8.15
St. Louis, Mo.	.11-2 8.80/9.55	.05-9 3.40/6.42	.06-8 3.70/5.70
San Antonio, Tex.	.04-6 2.60/3.10	.14/21 11.40/14.90	.12 9.80
San Francisco/Oakland, Cal.	.24	20.02	.21-5 18.02/22.53
Seattle, Wash.			.21 18.02
Toledo, Ohio	.16	13.20	.04-7 3.15

From —>	Los Angeles, Cal.	Louisville, Ky.	Memphis, Tenn.
Destination (1) (2)	(1) (2)	(1) (2)	(1) (2)
Atlanta, Ga.	.09	7.80	
Baltimore, Md.	.14	11.40	
Boston, Mass.	.18	14.90	.13 10.80/92
Buffalo, N.Y.	.09	6.42	
Charleston, S.C.	.08	6.10	
Chicago, Ill.	.17	13.50	.06-7 3.00/4.78
Cincinnati, Ohio	.14	11.40	.07 7.48
Cleveland, Ohio	.16	12.50	.06-10 4.05/8.15
Dallas, Tex.	.17	13.50	.13 10.92
Dayton, Ohio			.08 5.84
Denver, Colo.	.17	13.50	.13-5 11.44/12.10
Detroit, Mich.	.17	13.50	.06-7 3.00/4.78
Fort Wayne, Ind.			.08 7.30
Fort Worth, Tex.	.17	13.50	.13 10.92
Hartford, Conn.	.17	13.50	.12-4 9.82/10.50
Houston, Tex.	.14	11.40	.17 15.83
Indianapolis, Ind.	.15	11.90	.07 4.78
Kansas City, Mo.	.19	15.80	.08 6.80
Los Angeles, Cal.			.21 20.20-2
Louisville, Ky.	.14	10.90	.08 5.27
Memphis, Tenn.	.13/15 10.40/12.20	.11 9.24	.12 10.40
Miami, Fla.			.17 14.00
Milwaukee, Wis.			.06 4.00
Minneapolis/St. Paul, Minn.	.09	7.20	.06 4.00
Mobile, Ala.			.17 14.00
New Orleans, La.	.10	8.30	.17 14.00
New York, N.Y.	.16	12.50	.11-3 9.00-80
Newark, N.J.	.16	12.50	.11-3 9.00-80
Oklahoma City, Okla.			.11 9.24
Philadelphia, Pa.	.15	11.90	.11-3 8.73/9.40
Pittsburgh, Pa.	.15	11.90	.07-8 5.00-84
Portland, Me.			.16 13.30
Portland, Ore.			.21-6 20.00-22
Providence, R.I.			.12-4 10.35/11.30
Richmond, Va.	.17	14.00	.12-4 10.35/11.30
St. Louis, Mo.	.15/18 12.50/14.80	.07 4.78	.08 6.80
San Antonio, Tex.	.17	13.50	.15 13.63
San Francisco/Oakland, Cal.			.24 21.95
Seattle, Wash.			.21-6 20.00-22
Toledo, Ohio	.15	13.00	.06-7 4.05/7.48

From —>	Los Angeles, Cal.	Louisville, Ky.	Memphis, Tenn.
Destination (1) (2)	(1) (2)	(1) (2)	(1) (2)
Dayton, Ohio	.24-5 22.52-3	.07 2.57/4.78	.08 5.84
Denver, Colo.	.13-7 10.92-14.21		.14 11.60
Detroit, Mich.	.25 23.10	.08-11 5.41/9.24	.09-14 7.80/12.02
Fort Wayne, Ind.	.24-7 21.90-5	.07 3.72	.08 6.70
Fort Worth, Tex.	.16 14.74	.11 9.24	.08 5.84
Hartford, Conn.	.31-3 28.80/29.46	.11 8.80/9.24	.14 11.90/12.54
Houston, Tex.	.21 17.25	.11-2 9.40/10.35	.08-9 6.70/7.20
Indianapolis, Ind.	.22-4 21.35-7	.04-7 2.30/4.78	.06-10 5.60/8.15
Kansas City, Mo.	.20 16.40	.09 6.48	
Los Angeles, Cal.		.23 21.37	
Louisville, Ky.	.23 21.37		
Memphis, Tenn.	.20 19.13	.06-7 4.50/78	.10 8.15
Miami, Fla.	.14 10.90	.13/15 10.40/12.20	
Milwaukee, Wis.	.21 20.20-2	.08 5.27	.11 9.24
Minneapolis/St. Paul, Minn.	.22 20.74		.12 10.40
Mobile, Ala.	.08 6.70	.06 5.00	
New Orleans, La.	.09 7.80	.06-14 5.00/11.40	
New York, N.Y.	.30-1 28.85-8	.10-1 8.30/73	.14 11.40/12.02
Newark, N.J.	.30-1 28.85-8	.10-1 8.30/73	.14 11.40/12.02
Oklahoma City, Okla.	.16 14.74	.11 8.73	.07-11 6.20/8.73
Philadelphia, Pa.	.30 27.70-2	.09-10 7.20-58	.13 10.40-92
Pittsburgh, Pa.	.26 24.84	.07-8 4.86/5.27	.09-11 7.80/8.73
Portland, Me.	.36-8 30.20		
Portland, Ore.	.12 10.35		
Providence, R.I.	.32 30.00-3	.11-2 9.40-82	.15 12.50/13.12
Richmond, Va.	.28 26.57	.08-10 6.10/8.15	.11 8.80/9.24
St. Louis, Mo.	.20 18.60	.05-11 3.40/8.73	.05-14 3.90/12.54
San Antonio, Tex.	.16 14.74	.13-4 10.90/11.44	.08-11 7.25/9.40
San Francisco/Oakland, Cal.	.05-7 4.05-86	.25 23.10	.23 20.79
Seattle, Wash.	.14 12.02	.430	.09 7.80
Toledo, Ohio	.25-7 23.10/25.41	.07 4.30	.09 7.80

From —>	Miami, Fla.	Milwaukee, Wis.	Minneapolis-St. Paul, Minn.
Destination (1) (2)	(1) (2)	(1) (2)	(1) (2)
Atlanta, Ga.	.09	7.80	
Baltimore, Md.	.14	11.40	
Boston, Mass.	.18	14.90	.13 10.80/92
Buffalo, N.Y.	.09	6.42	
Charleston, S.C.	.08	6.10	
Chicago, Ill.	.17	13.50	.06-7 3.00/4.78
Cincinnati, Ohio	.14	11.40	.07 7.48
Cleveland, Ohio	.16	12.50	.06-10 4.05/8.15
Dallas, Tex.	.17	13.50	.13 10.92
Dayton, Ohio			.08 5.84
Denver, Colo.	.17	13.50	.13-5 11.44/12.10
Detroit, Mich.	.17	13.50	.06-7 3.00/4.78
Fort Wayne, Ind.			.08 7.30
Fort Worth, Tex.	.17	13.50	.13 10.92
Hartford, Conn.	.17	13.50	.12-4 9.82/10.50
Houston, Tex.	.14	11.40	.17 15.83
Indianapolis, Ind.	.15	11.90	.07 4.78
Kansas City, Mo.	.19	15.80	.08 6.80
Los Angeles, Cal.			.21 20.20-2
Louisville, Ky.	.14	10.90	.08 5.27
Memphis, Tenn.	.13/15 10.40/12.20	.11 9.24	.12 10.40
Miami, Fla.			.17 14.00
Milwaukee, Wis.			.06 4.00
Minneapolis/St. Paul, Minn.	.09	7.20	.06 4.00
Mobile, Ala.			.17 14.00
New Orleans, La.	.10	8.30	.17 14.00
New York, N.Y.	.16	12.50	.11-3 9.00-80
Newark, N.J.	.16	12.50	.11-3 9.00-80
Oklahoma City, Okla.			.11 9.24
Philadelphia, Pa.	.15	11.90	.11-3 8.73/9.40
Pittsburgh, Pa.	.15	11.90	.07-8 5.00-84
Portland, Me.			.16 13.30
Portland, Ore.			.21-6 20.00-22
Providence, R.I.			.12-4 10.35/11.30
Richmond, Va.	.17	14.00	.12-4 10.35/11.30
St. Louis, Mo.	.15/18 12.50/14.80	.07 4.78	.08 6.80
San Antonio, Tex.	.17	13.50	.15 13.63
San Francisco/Oakland, Cal.			.24 21.95
Seattle, Wash.			.21-6 20.00-22
Toledo, Ohio	.15	13.00	.06-7 4.05/7.48

DOMESTIC AIR CARGO RATES—Continued

From → Destination	Mobile, Ala. (1)	(2)	New Orleans, La. (1)	(2)	New York, N. Y., Newark, N. J. (1)	(2)	From → Destination	Oklahoma City, Okla. (1)	(2)	Philadelphia, Pa. (1)	(2)	Pittsburgh, Pa. (1)	(2)	From → Destination	Richmond, Va. (1)	(2)	St. Louis, Mo. (1)	(2)	San Antonio, Tex. (1)	(2)	
Atlanta, Ga.	.06	4.50	.07	5.60	.11	8.80	Providence, R. I.	.19	17.51	.05-7	3.40/4.78	.09	6.42	Kansas City, Mo.			.06-8	3.70/5.70	.12	9.80	
Baltimore, Md.	.12	9.50	.13	10.40	.04-7	3.00/4.78	Richmond, Va.	.15	13.63	.05-7	3.40/4.78	.11	8.73	Los Angeles, Cal.	.28	26.57	.20	18.60	.16	14.74	
Boston, Mass.	.17	14.00	.19	15.60	.04-8	2.90/4.93	St. Louis, Mo.	.05-9	6.42	.12	9.80/10.35	.09/11	7.57/8.73	Louisville, Ky.	.08/10	6.10/8.15	.05/11	3.40/8.73	.13-4	10.90/11.4	
Buffalo, N. Y.	.08	6.10	.09	7.80	.09	7.80	San Antonio, Tex.	.08	5.84	.19	17.20/18.02	.17	14.20/15.31	Memphis, Tenn.	.11	8.80/9.24	.05/14	3.90/12.54	.08/11	7.25/9.44	
Chicago, Ill.	.11	9.40	.13	9.80/10.30	.11	9.24-30	San Francisco/ Oakland, Cal.	.19	17.51	.30-1	29.45-6	.27	26.57	Miami, Fla.	.13	9.80	.16/18	12.50/14.80	.17	13.50	
Cincinnati, Ohio			.11	8.80	.10	7.57-8	Seattle, Wash.			.30	28.30	.32	24.00	Milwaukee, Wis.	.11	8.80/9.24	.07	4.78	.15	13.63	
Cleveland, Ohio					.08-9	5.84/6.00	Toledo, Ohio			.08	5.95/6.70	.06-8	3.70/4.80	Minneapolis/ St. Paul, Minn.	.14	11.00	.08	6.80	.18	14.60	
Dallas, Texas			.07	5.60	.18	16.70-93	Fort Wayne, Ind.							Mobile, Ala.	.11	9.40	.09	7.20	.09	7.80	
Dayton, Ohio					.09	6.99/7.00	Fort Worth, Tex.							New Orleans, La.	.13	10.40	.09	7.20	.08	6.70	
Denver, Colo.			.17	14.00	.20-3	19.13/20.20	Hartford, Conn.							New York, N. Y./ Newark, N. J.							
Detroit, Mich.	.13	10.40	.14	10.90	.08-9	6.00-80	Houston, Tex.							N. J.	.05-7	3.90/4.78	.13	10.40-92	.20	17.50/18.00	
Fort Wayne, Ind.			.14	10.80	.10	7.57/8.70	Indianapolis, Ind.							Oklahoma City, Okla.	.15	13.63	.08-9	6.42	.08	5.84	
Fort Worth, Tex.			.07	5.60	.18	16.70-93	Kansas City, Mo.							Philadelphia, Pa.	.05-7	3.40/4.78	.12	9.80/10.35	.19	17.20/18.02	
Hartford, Conn.	.16	13.00	.18	14.60	.04-7	2.30/4.78	Los Angeles, Cal.							Pittsburgh, Pa.	.11	8.73	.09/11	7.57/8.73	.17	14.20/15.31	
Houston, Tex.	.07	5.60	.06	4.50	.18	16.10-93	Los Angeles, Cal.							Portland, Me.			.17	15.70	.31	27.40	
Indianapolis, Ind.	.08	7.80	.11	8.80	.11	8.73	Louisville, Ky.							Portland, Ore.							
Kansas City, Mo.	.07	5.50	.11	9.10	.15	13.11	Miami, Fla.							Providence, R. I.	.07-8	5.90-84	.14	11.90/12.55	.21	19.30/20.22	
Los Angeles, Cal.					.30-1	28.85-8	Milwaukee, Wis.							Richmond, Va.			.10-3	8.30/11.44		15.00-83	
Louisville, Ky.	.08	6.70	.09	7.80	.10-1	8.30-73	Minneapolis/ St. Paul, Minn.							St. Louis, Mo.	.10-3	8.30/11.44			.12	9.82/10.40	
Memphis, Tenn.	.06	5.00	.06/14	5.00/11.40	.14	11.40/12.02	San Francisco/ Oakland, Cal.							San Antonio, Tex.	.17	15.00-83	.12	9.82/10.40			
Miami, Fla.	.09	7.20	.10	8.30	.16	12.50	Seattle, Wash.							San Francisco/ Oakland, Cal.	.30	28.30	.21	20.21-2	.19	17.51	
Milwaukee, Wis.			.11-3	9.00-80			Seattle, Wash.							Seattle, Wash.	.09	6.10	.08	5.95	.17	13.50	
Minneapolis/ St. Paul, Minn.		.17	14.00	.14	11.00		San Antonio, Tex.							Toledo, Ohio							
Mobile, Ala.		.04	2.30/3.00	.14	11.40		San Francisco/ Oakland, Cal.														
New Orleans, La.		.04	2.30/3.00		.15	12.50	San Francisco/ Oakland, Cal.														
New York, N. Y./ Newark, N. J.	.14	11.40	.15	12.50			San Francisco/ Oakland, Cal.														
Oklahoma City, Okla.			.10	8.00	.17	15.83	San Francisco/ Oakland, Cal.														
Philadelphia, Pa.	.14	11.40	.15	12.50	.04-7	1.80/4.78	San Francisco/ Oakland, Cal.														
Pittsburgh, Pa.	.11	9.00	.12	9.50	.07	4.70-8	San Francisco/ Oakland, Cal.														
Portland, Me.					.07	5.40/6.00	San Francisco/ Oakland, Cal.														
Portland, Ore.					.30-7	28.00-30	San Francisco/ Oakland, Cal.														
Providence, R. I.	.17	13.50	.18	15.00	.04-7	2.30/4.78	San Francisco/ Oakland, Cal.														
Richmond, Va.	.11	9.40	.13	10.40	.05-7	3.90/4.78	San Francisco/ Oakland, Cal.														
St. Louis, Mo.	.09	7.20	.09	7.20	.13	10.40-92	San Francisco/ Oakland, Cal.														
San Antonio, Tex.	.09	7.80	.08	6.70	.20	17.70/18.60	San Francisco/ Oakland, Cal.														
San Francisco/ Oakland, Cal.					.31-2	30.00-3	San Francisco/ Oakland, Cal.														
Seattle, Wash.					.30-7	28.00-30	San Francisco/ Oakland, Cal.														
Toledo, Ohio	.13	10.40	.14	10.90	.08-10	6.00/7.00	San Francisco/ Oakland, Cal.														
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144 Catalog sheet illustrating and describing Ellwell-Parker's complete line of power industrial trucks.

145 Specification sheet of the Hyster TC-200, 20,000-pound capacity fork lift truck.

146 Shipping to the South Pacific? Ask for Qantas' air cargo rate folder, which also includes pertinent information on shipping by air, destinations, etc.

147 Descriptive folder on a round steel strapping machine which will tension, tie, and cut round steel strapping in a single operation, with no seals required.

148 *The Signode Seal*, a helpful publication for those concerned with better packaging, shipping, and handling.

149 Six case studies which show how typical firms, both large and small, have sharply reduced costs of gathering and assembling paper forms with a collating machine.

150 *Cleared for Take-Off*, a behind-the-scenes story of United Air Lines' operations. Fascinating illustrations.

151 *The Development of a Domestic Economy*, a 20-page illustrated study of the rise of internal industry in Brazil, the growth of her cities, and the extension of the economy inland.

152 A new brochure describing steel strapping equipment suitable for tying for shipment products weighing up to 100 pounds.

153 Brochure well illustrates two models of steel strapping machines particularly useful in strapping light packages weighing up to 75 pounds.

154 Attractive brochure of particular interest to the *small business* man who is interested in getting his mail out fast, efficiently, and economically.

155 How accurate are your mailing scales? Here's an effective brochure which describes and illustrates the precision scales of one manufacturer.

156 Descriptive information on the Lite-N-Tuff hand truck, especially designed to reduce the effects of load jar on fragile cargo when moving over rough ground, jumping curbs, etc.

157 Information on the line of Rapistan galvanized steel channel Rapid-Wheel and Rapid-Roller gravity conveyors.

158 Complete data on a newly developed aluminum conveyor that handles materials heavier than its own weight.

159 Latest issue of *Handling Materials Illustrated*, which features interesting case histories of successful materials handling operations at various types of firms.

160 Air freight tariff of Frank P. Dow Company, Inc., Pacific Coast consolidation firm.

161 Descriptive literature on Baker-Raulang's FT-40, 4,000-pound capacity electric fork lift truck.

162 Descriptive literature on Baker-Raulang's FT 60, 6,000-pound capacity electric fork lift truck.

New Items This Month

It is the policy of the editors to retain each *Come 'n' Get It* item for a period of three months.

The items added this month are numbers 172 to 179 inclusive.

163 Domestic air freight tariff schedule of ABC Air Freight Company, Inc., including general and specific commodity rates.

164 Memorandum Tariff No. 2 of British Overseas Airways Corporation. Includes international air cargo rates and general information concerning shipping by air.

165 *Flight Plan*, a fascinating 36-page booklet which brings the reader behind the scenes of United Air Lines operation. Highly pictorial and extremely interesting.

166 For "five easy and utterly preposterous lessons" in mailing a letter, we heartily recommend this humorous but informative 14-page booklet, *How to Mail A Letter*.

167 You will want to read United Air Lines' *Industry's Flying Partner*, designed especially for those concerned with and interested in shipping by air.

168 Complete details on a new wire-bound shipping container design which simplifies costly "relay packing" as well as reduces costs.

169 Information on a new product which paints out all stencil and painted markings on shipping containers, making them fully reusable. Dries in less than five minutes.

170 Air Express International's new Golden Tariff—a condensed version of its big tariff, designed for area use. Arranged in easy-to-read tabular form.

171 Business executives and traffic executives will be interested in receiving this regularly issued newsletter published by Emery Air Freight Corporation. Contains interesting case histories of airfreighted shipments involving a wide variety of commodities.

172 Shippers and business executives are invited to read, *There's Profit in the Air with Clipper Cargo*, a 14-page book published by Pan American World Airways which features seven case histories showing how various businesses save large sums of money through the use of air cargo.

173 Users of steel band for packing their products will be interested in receiving this new two-page catalog sheet, providing widths and thicknesses, number of feet per pound, and tensile strengths of light- and heavy-duty Alleghany Steelband Strapping in all available sizes.

174 Literature on a new hand truck reportedly designed to lift easily a 700-pound load from floor level to truck body. Called the Easy-Lift Hand Truck, it combines the maneuverability of a hand truck with lifting advantages.

175 Information on a pneumatic stretcher designed for use on round or irregular packages where the strapping surface is limited.

176 Flying down to South America to close a business deal or to relax for a while? We recommend you heartily to Panagra's 108-page illustrated book, *How to Get the Most Out of Your Trip to South America*.

177 Here's another handy Panagra booklet—this one specifically designed for the shipper and forwarder. Provides you with a quick reference guide to shipping from cities in the United States to countries in South America. Includes documentary requirements, routing pattern, etc.

178 Towmotor's set of three brochures detailing for busy executives concerned with materials handling the company's complete line of fork lift trucks, tractors, and accessories.

179 Interested in chartering an airliner? Here's an informative little folder which tells you all about the recently organized Air Charter Traffic Exchange.

56-3

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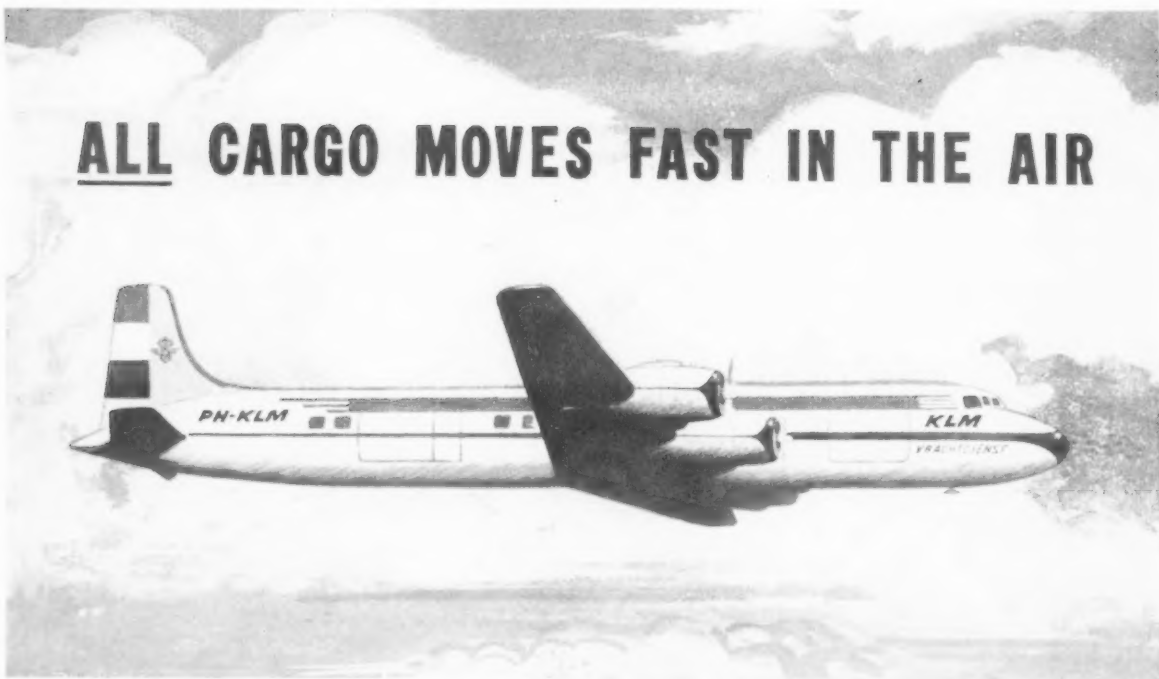
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